

**TECHNICAL DOCUMENTATION FOR A
RESIDENTIAL ENERGY USE DATA BASE DEVELOPED
IN SUPPORT OF ASHRAE SPECIAL PROJECT 53**

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SUMMARY

Starting in 1986, Pacific Northwest Laboratory (PNL) has been working with ASHRAE Special Project 53 to conduct research in support of a residential energy conservation standard. The Energy Analysis Program at Lawrence Berkeley Laboratory (LBL) has been contracted by PNL to develop a new residential energy use data base in support of this effort. The simulation methodology improves upon that used earlier by LBL in producing the voluntary energy guidelines data base. Significant enhancements were made in the modeling of underground heat flow, window operations and glazing types, and cooling loads. Since the proposed standards will be in a computerized format, the final data base was tailored to utilize the capabilities of a micro-computer program.

The residential energy use data base was developed using the DOE-2.1C building energy simulation program and covers three building prototypes (one-story, townhouse, and apartment), three foundation conditions (slab-on-grade, basement, and vented crawl space) in 45 U.S. locations. For each building prototype and location, a range of insulation, infiltration, and window conditions were considered. The calculated annual heating and cooling loads were analyzed and reduced to regression coefficients giving the contribution to building load of each component, i.e., ceiling, walls, infiltration, as a function of its thermal and physical characteristics.

The primary format of the data base is a computer file of regression coefficients coded by prototype, location, building component, and separated by heating or cooling. The same information is also available in printed form on tables that also show the incremental changes in heating and cooling loads for typical conservation measures. The data base serves as the building loads calculation portion of the computer program being developed by PNL as a residential conservation standard.

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INTRODUCTION

Over the past decade, the Energy Analysis Program at Lawrence Berkeley Laboratory has conducted extensive computer analysis of the impact of various conservation measures on energy use in residential buildings in different U. S. locations. From 1982 to 1986, LBL was involved in the voluntary residential standards project funded by Department of Energy, and compiled a large data base of residential energy use from parametric simulations using the DOE-2.1A and DOE-2.1B energy simulation programs. The methodology used to build that data base have been extensively reviewed and documented in a technical support document (Huang et al. 1987). The final version of the data base is an interactive computer program called PEAR (Program for Energy Analysis of Residences; Energy Analysis Program 1987). The same data base is also used in the proposed energy conservation standards for new federal residential buildings, and the 1987 draft of ASHRAE-90.2 Standard.

The data base effort described in this report was done by LBL on contract to Pacific Northwest Laboratory for the ASHRAE Special Project 53, "Research in Support of a Residential Energy Conservation Standard". After reviewing the earlier voluntary energy guidelines work, the SP53 committee recommended that the data base be expanded to include additional conservation measures and upgraded with improved analysis of foundation and cooling loads. After discussions between the committee, PNL, and LBL, the decision was reached to create a new data base. This decision would insure compatibility throughout the data base, and utilize improved simulation techniques, more realistic operating assumptions, and better weather data developed over the past six years. Although repeating the DOE-2 simulations required a substantial amount of computer time, the staff effort was reduced since the methodology and analysis techniques had been developed already in the course of the voluntary energy guidelines work.

Whenever this data base work utilizes the same assumptions and analysis techniques as the earlier work, these will be briefly summarized in this report, and references made to the technical documentation for the earlier work for further details. This applies to the prototype building descriptions, the selection of base cities, internal loads, and construction details. This report will focus more on those areas where substantial improvements have been made in simulation techniques or in the analysis of results. The major areas include (1) use of a two-dimensional finite-difference program to calculate heat fluxes through the building-ground interface, (2) use of non-linear multi-variant regression analysis to correlate window loads, and (3) reduction of building loads data into regression coefficients.

BUILDING ENERGY ANALYSIS

Basic Simulation Method

The data base simulations were done using a developmental version of the DOE-2.1C program (for a description of DOE-2, refer to Lawrence Berkeley Laboratory 1980). In addition, two smaller programs were used to generate inputs to DOE-2.1C for response factors and underground heat fluxes.

Compared to earlier versions of DOE-2, DOE-2.1C has improved modeling of solar gain, internal walls, residential infiltration, better custom weighting factor calculations, and new system performance curves that more accurately model part load effects in residential air-conditioners. DOE-2.1C also has the flexibility of permitting user-input functional values in the LOADS portion of the simulations. This feature was used in the data base work to define the summer window shading schedule based on cooling degree days, and to input heat fluxes calculated by a two-dimensional finite difference model in place of the standard DOE-2 calculations for underground surfaces.

The developmental 2.1C version used to generate the data base has the following enhancements to the Residential SYSTEMS portion of the program: (1) the natural ventilation rate is calculated as a function of exterior wind speed and temperature rather than a fixed input value, and (2) the natural ventilation controls are held fixed between midnight and 7 a.m., i.e., it is assumed that occupants will not operate the windows after going to bed. These modifications give more realistic modeling of typical window operations in residences and will be included in future public releases of DOE-2.1.

Two additional programs, WALFERF and a finite-difference program for underground heat flow developed by the Underground Space Center at the University of Minnesota (here referred to as the USCUG model), were used to improve the modeling capabilities of DOE-2.1C.

Response Factors

WALFERF is a finite-element program developed at LBL to calculate wall response factors for two-dimensional heat conduction. The program is based on a DOE-2 subroutine originally written to model earth contact surfaces (Bull et al. 1981) and uses a technique developed by Ceylan and Myers (Ceylan et al. 1979). In addition to the standard input for thermal properties, thicknesses, and sequence of materials

making up each block, WALFERF also requires the number of blocks and their widths. Figure 1.1 shows a sample input file and schematic representation of a R-11 wood-frame wall modeled as two blocks, a stud portion 0.75 inch wide and a non-stud portion 2.25 inches wide. Figures 1.2 through 1.5 show similar input files for typical log wall, concrete wall, ceiling, and floor assemblies. The output from WALFERF are two-dimensional response factors that can be written into the standard DOE-2 response factor library format. For a wall composed of a single block, WALFERF produces the same response factors as the DOE-2 BDL program. Future release versions of DOE-2 program will include WALFERF as a utility program. For the residential data base, WALFERF was used to generate the response factor library for the delayed walls. This method accounts for two-dimensional heat flow in mixed walls and obviates the need to model separately the stud and non-stud portions of walls.

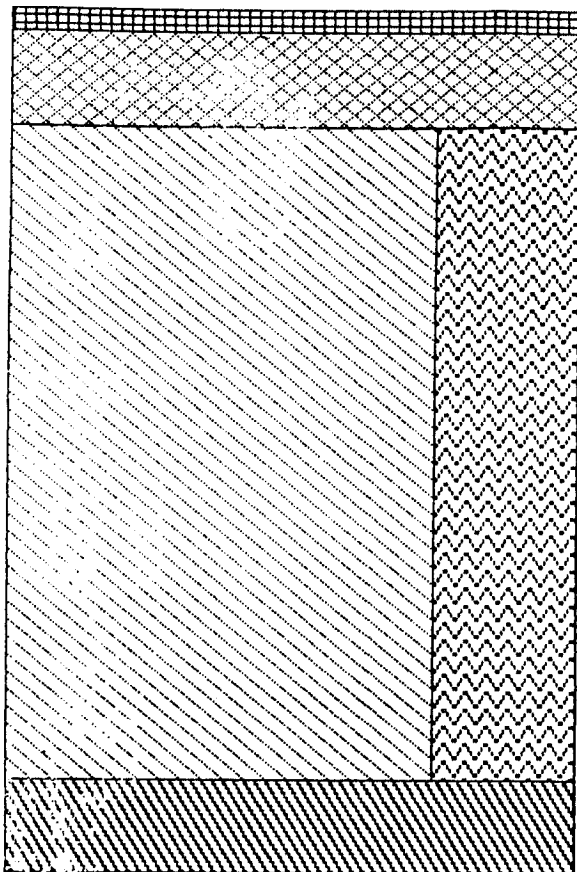
Below-grade Modeling

Since the existing DOE-2 program does not adequately model the building-to-ground interface, LBL has worked with the Underground Space Center (USC) at the University of Minnesota to incorporate into DOE-2.1C results from a below-grade heat transfer simulation program developed at the USC. The USCUG model is a two-dimensional fully-implicit integrated finite difference heat conduction program (Underground Space Center 1983). It was used to simulate on a daily time step the dynamic behavior of a representative one-foot vertical cross-section of the foundation and surrounding soil extending 50 feet down and 30 feet out from the building (Figure 1.6). The boundary conditions, i.e., the assumed indoor, outdoor and deep ground temperatures, were kept identical as those used for the DOE-2 simulations. Deep ground temperatures were based on existing data on well temperatures (Labs 1981), indoor temperatures set to the zone temperature in the DOE-2.1C LOADS calculation, and the average outdoor daily air temperatures calculated from the DOE-2 weather tapes. A three-year initialization period was necessary for the representative section to stabilize.

The USCUG simulations yield daily fluxes at each node of the finite difference grid for the representative section. These fluxes were then integrated over the "foot-print" of the prototype foundation to produce a file of average hourly fluxes through the underground surfaces of the prototype buildings for each day of the year (Figure 1.7). During the DOE-2.1C simulation, these fluxes are read as a function in LOADS, supplanting the standard DOE-2 underground flux calculation. Although the DOE-2 program was not used for calculating underground heat conduction, it was still necessary to model the underground layers as delayed walls to calculate response factors. These

Figure 1.1 WALFERF Input for R-11 Wood-frame Wall

r11rwall 0 0 1				(file name)
17				(number of material descriptions)
0.0925	0.26	50.0	3.	drywall
0.0263	0.20	1.15	4.	insulation
0.0342	0.31	22.0	6.	int. dens. sheathing
0.0168	0.29	1.0	9.	aluminum siding
0.9217	0.24	.075	16.	airlayh
0.9901	0.24	.075	17.	airlayv
4	3.0	No. of layers		(no. of layers and total width)
1	0.12	L-1		(no. of blocks and thickness for L-1)
9	3.0			(material and width)
1	0.5	L-2		(no. of blocks and thickness for L-2)
6	3.0			(material and width)
2	3.5	L-3		(no. of blocks and thickness for L-3)
4	2.25			(material and width)
2	0.75			(material and width)
1	0.5	L-4		(no. of blocks and thickness for L-4)
3	3.0			(material and width)
	0.680			(inside film resistance)



Layer 1 0.12"
 Blk 1 R 0.5952 aluminum siding
 Layer 2 0.50"
 Blk 1 R 1.2183 int. dens. she
 Layer 3 3.50"
 Blk 1 R11.0900 insulation
 Blk 2 R 4.3597 wood
 Layer 4 0.50"
 Blk 1 R 0.4505 drywall
 I F R = 0.6800






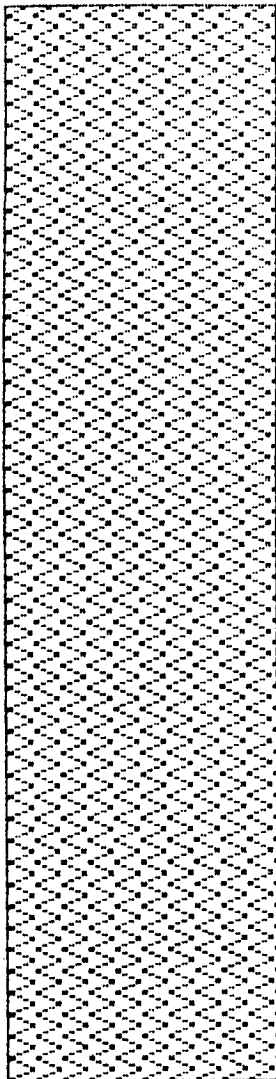
	wood			
		0.0669	0.290	34.00
	insulation			
		0.0263	0.200	1.15
	aluminum siding			
		0.0168	0.290	1.00
	drywall			
		0.0925	0.260	50.00
	int. dens. sheathing			
		0.0342	0.310	22.00

Figure 1.2 WALFERF Input for 8 inch Log Wall

8log 0 0 1					(file name)
12					(number of material descriptions)
.5	.22	70.0	1.	mason1	(conductance, specific heat,
.5	.22	140.0	2.	mason2	and density of materials)
.0669	.29	34.0	3.	wood	
.0925	.26	50.0	4.	drywall	
.0263	.20	1.15	5.	insulation	
.4167	.22	116.0	6.	stucco	
1	2.00	No. of layers		(no. of layers and total width)	
1	8.00	L-1		(no. of blocks and thickness for L-1)	
3	2.00			(material and width)	
	.680			(inside film resistance)	



Layer 1 8.00"

Blk 1 R 9.9651 wood

I F R = 0.6800

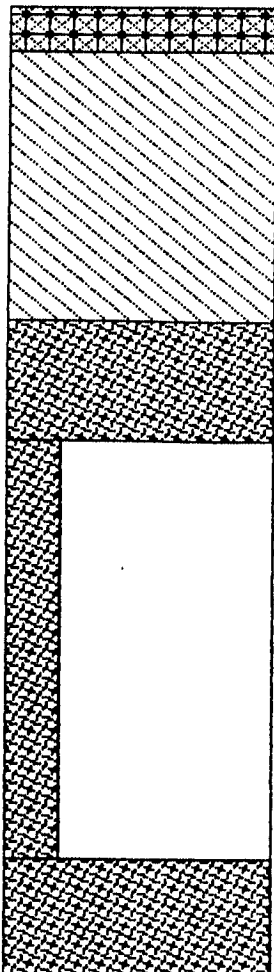


wood

0.0669 0.290 34.00

Figure 1.3 WALTERF Input for R-10 Concrete-block Wall

r10cb95 0 0 1					(file name)
12					(number of material descriptions)
.5	.22	70.0	1.	mason1	(conductance, specific heat,
.5	.22	140.0	2.	mason2	and density of materials)
.0925	.26	50.0	4.	drywall	
.0263	.20	1.15	5.	insulation	
.4167	.22	116.0	6.	stucco	
.5	.22	70.0	7.	concblock1	
.5	.22	140.0	8.	concblock2	
.2	.30	5.0	9.	perlite1	
.5	.30	5.0	10.	perlite2	
.4026	.24	.0750	12.	4.88" block gap	
5	3.06	No. of layers		(no. of layers and total width)	
1	0.50	L-1		(no. of blocks and thickness for L-1)	
6	3.06			(material and width)	
1	3.16	L-2		(no. of blocks and thickness for L-2)	
5	3.06			(material and width)	
1	1.38	L-3		(no. of blocks and thickness for L-3)	
7	3.06			(material and width)	
2	4.88	L-4		(no. of blocks and thickness for L-4)	
7	0.63			(material and width)	
12	2.43			(material and width)	
1	1.38	L-5		(no. of blocks and thickness for L-5)	
7	3.06			(material and width)	
	.680			(inside film resistance)	



Layer 1 0.50"
 Blk 1 R 0.1000 stucco
 Layer 2 3.16"
 Blk 1 R10.0127 insulation
 Layer 3 1.38"
 Blk 1 R 0.2300 concblock3
 Layer 4 4.88"
 Blk 1 R 0.8133 concblock3
 Blk 2 R 1.0101 4.88" block gap
 Layer 5 1.38"
 Blk 1 R 0.2300 concblock3
 I F R = 0.6800





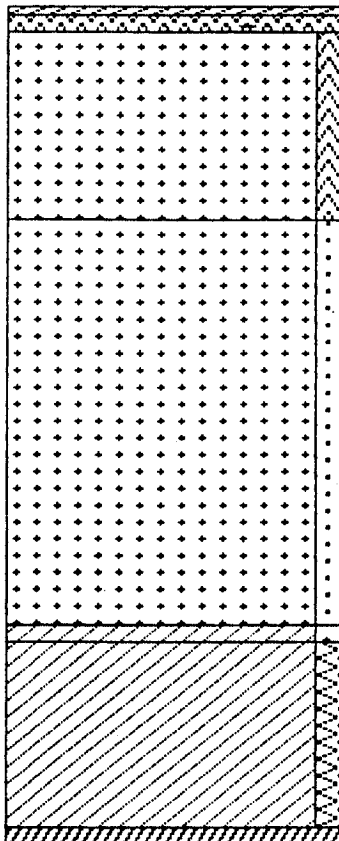
	stucco			
	0.4167	0.220	116.00	
	4.88" block gap			
	0.4026	0.240	0.07	
	insulation			
	0.0263	0.200	1.15	
	concblock3			
	0.5000	0.220	95.00	

Figure 1.4 WALFERF Input for R-19 Ceiling Assembly

r19roof 0 0 1				(file name)
18				(number of material descriptions)
.0669	.29	34.0	2.	wood
.0472	.30	1.0	8.	shingle
.6873	.24	.075	11.	attic
.0249	.1897	1.15	13.	insuls
.08775	.275	50.0	14.	drywalls
.0633	.275	27.0	15.	woods
.42245	.24	.075	16.	airlayh 5.50"
.0384	.24	.075	17.	airlayh .50"
1.0023	.24	.075	18.	roofgap
7	9.75	No. of layers		(no. of layers and total width)
1	.25	L-1		(no. of blocks and thickness for L-1)
8	9.75			(material and width)
1	.50	L-2		(no. of blocks and thickness for L-2)
2	9.75			(material and width)
2	5.50	L-3		(no. of blocks and thickness for L-3)
18	9.00			(material and width)
2	.75			(material and width)
2	12.00	L-4		(no. of blocks and thickness for L-4)
18	9.00			(material and width)
11	.75			(material and width)
2	.50	L-5		(no. of blocks and thickness for L-5)
13	9.00			(material and width)
18	.75			(material and width)
2	5.50	L-6		(no. of blocks and thickness for L-6)
13	9.00			(material and width)
15	.75			(material and width)
1	.50	L-7		(no. of blocks and thickness for L-7)
14	9.75			(material and width)
	.765			(inside film resistance)











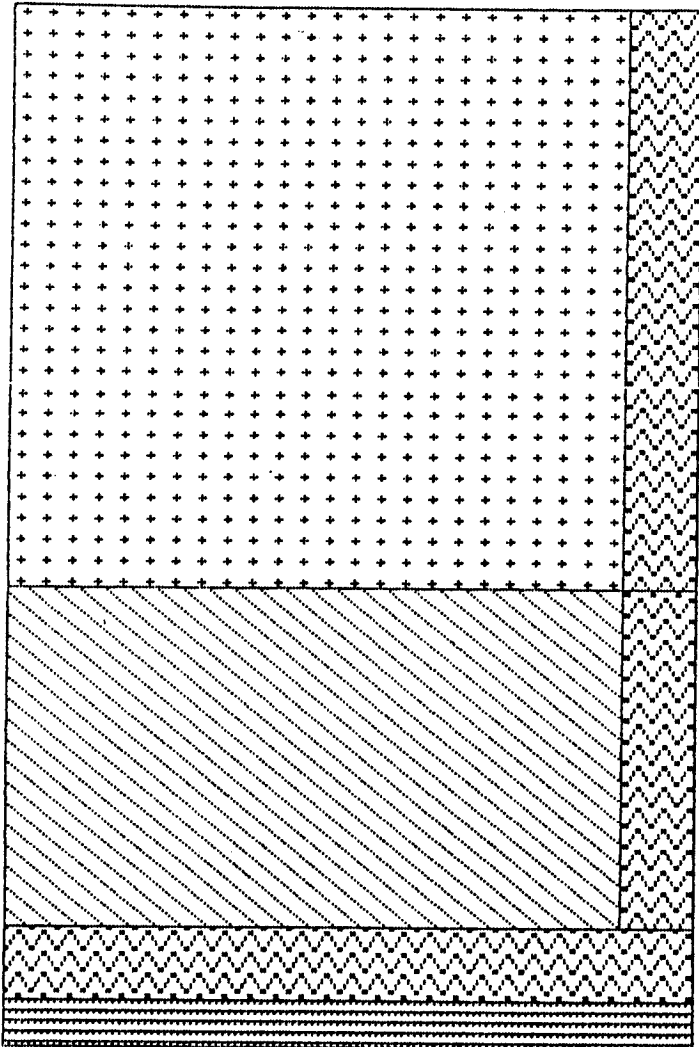
Layer 1	0.25"						
Blk 1 R	0.4414	shingle		wood	0.0669	0.290	34.00
Layer 2	0.50"						
Blk 1 R	0.6228	wood		attic	0.6873	0.240	0.07
Layer 3	5.50"						
Blk 1 R	0.4573	roofgap		drywalls	0.0877	0.275	50.00
Blk 2 R	6.8510	wood		roofgap	1.0023	0.240	0.07
Layer 4	12.00"						
Blk 1 R	0.9977	roofgap		shingle	0.0472	0.300	1.00
Blk 2 R	1.4550	attic		insuls	0.0249	0.190	1.15
Layer 5	0.50"						
Blk 1 R	1.6734	insuls		woods	0.0633	0.275	27.00
Blk 2 R	0.0416	roofgap					
Layer 6	5.50"						
Blk 1 R	18.4070	insuls					
Blk 2 R	7.2407	woods					
Layer 7	0.50"						
Blk 1 R	0.4748	drywalls					
I F R	= 0.7650						

Figure 1.5 WALFERF Input for R-11 Floor Assembly

r11flr 001					(file name)
18					(number of material descriptions)
.0669	.29	34.0	2.	wood	(conductance, specific heat,
.0263	.20	1.15	4.	insulation	and density of materials)
5.	.24	.075	16.	airlayh 6.00"	
.02	.34	2.0	18.	rugnpad	
4	7.00	No. of layers		(no. of layers and total width)	
2	6.00	L-1		(no. of blocks and thickness for L-1)	
16	6.25			(material and width)	
2	.75			(material and width)	
2	3.50	L-2		(no. of blocks and thickness for L-2)	
4	6.25			(material and width)	
2	.75			(material and width)	
1	.75	L-3		(no. of blocks and thickness for L-3)	
2	7.00			(material and width)	
1	.50	L-4		(no. of blocks and thickness for L-4)	
18	7.00			(material and width)	
	.760			(inside film resistance)	



Layer 1 6.00"
 Blk 1 R 0.1000 airlayh 6.00"
 Blk 2 R 7.4738 wood
 Layer 2 3.50"
 Blk 1 R11.0900 insulation
 Blk 2 R 4.3597 wood
 Layer 3 0.75"
 Blk 1 R 0.9342 wood
 Layer 4 0.50"
 Blk 1 R 2.0833 rugnpad
 I F R = 0.7600





	insulation			
	0.0263	0.200	1.15	
	rugnpad			
	0.0200	0.340	2.00	
	wood			
	0.0669	0.290	34.00	
	airlayh 6.00"			
	5.0000	0.240	0.07	

Figure 1.6 Foundation Cross-Section Modeled in the USCUG Finite Difference Program

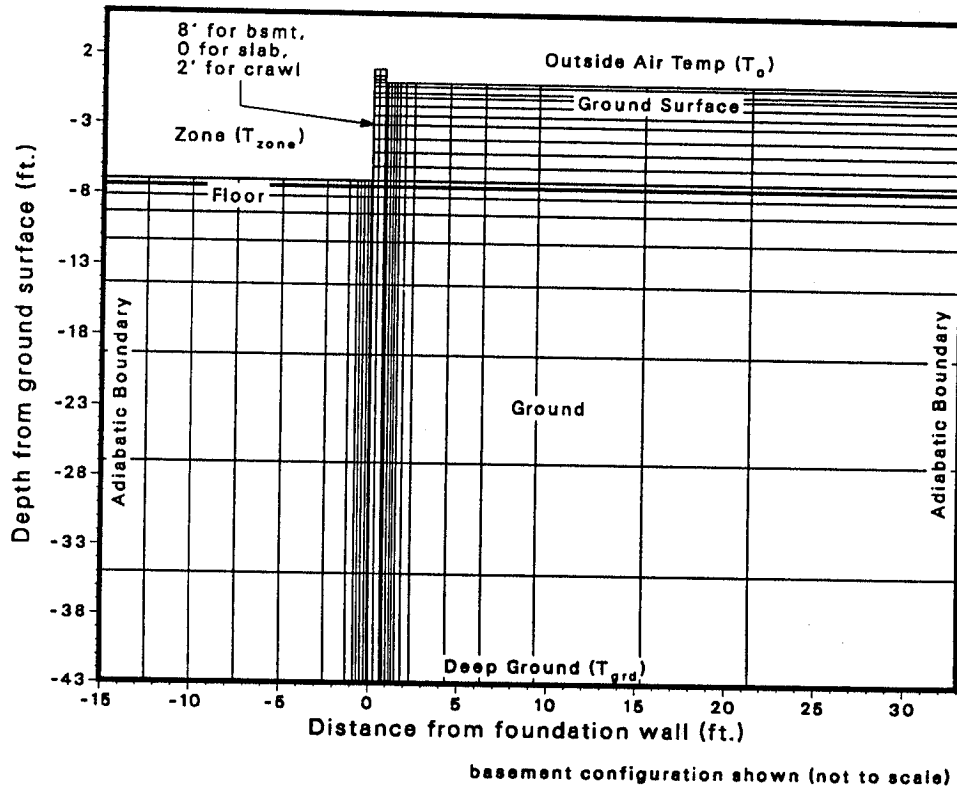
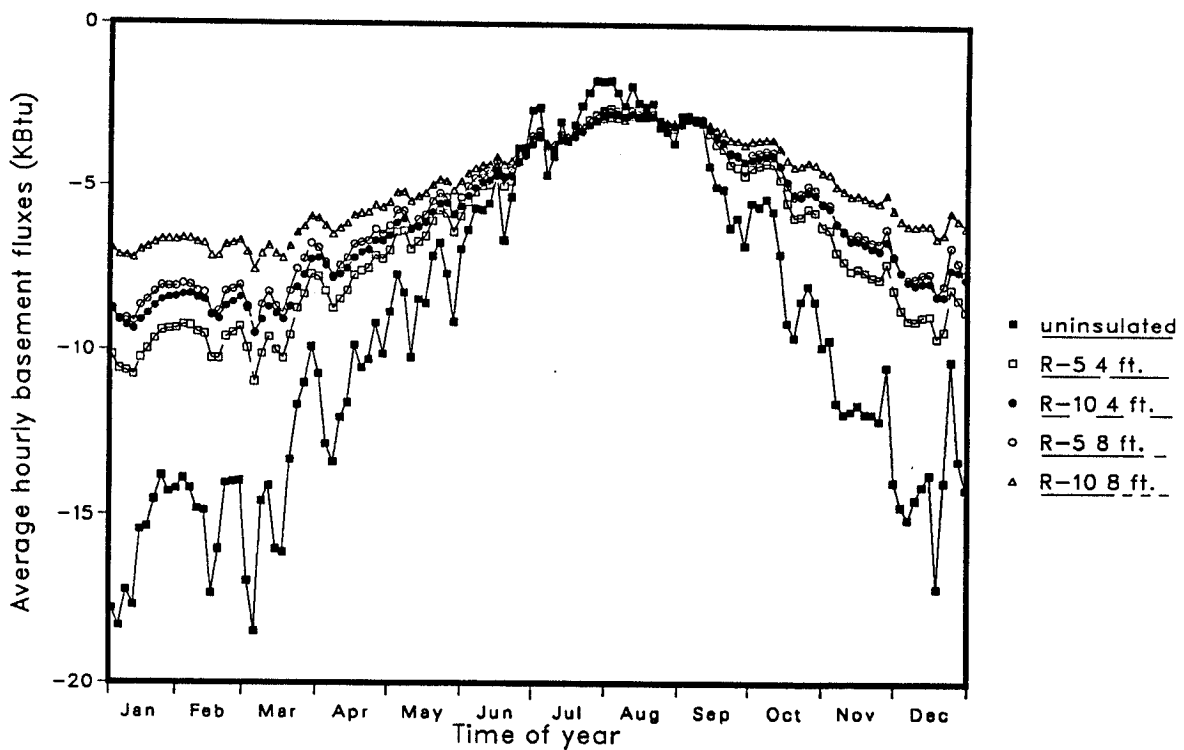


Figure 1.7 Average Hourly Fluxes for Basement Foundations in Denver CO Calculated by the USCUG Program



are used in DOE-2 to generate correct zone weighting factors for either the living space (in the case of the slab-on-grade), basement, or crawl-space. For the data base work, we have modeled the underground layers with the maximum amount of thermal mass allowable in DOE-2 to produce suitably "heavy" weighting factors for the zones.

Since the USCUG fluxes are calculated at an assumed constant indoor temperature corresponding to the DOE-2 LOADS temperature, it was also necessary to calculate "U-effectives" for the underground surfaces which would be used in DOE-2 SYSTEMS simulation to correct the underground fluxes for variations in the indoor temperature. This flux correction is significant for unconditioned basements and crawl-spaces where the seasonal fluctuation in zone temperatures may be large. The "U-effectives" used in the modeling have been computed by regression analysis correlating the underground flux to the temperature differential between indoor and outdoor temperatures (Figure 1.8). This "U-effective" can be regarded as the steady-state U-value for an underground surface approximated as one-dimensional heat transfer from the space to the outside air. *

Building Prototypes

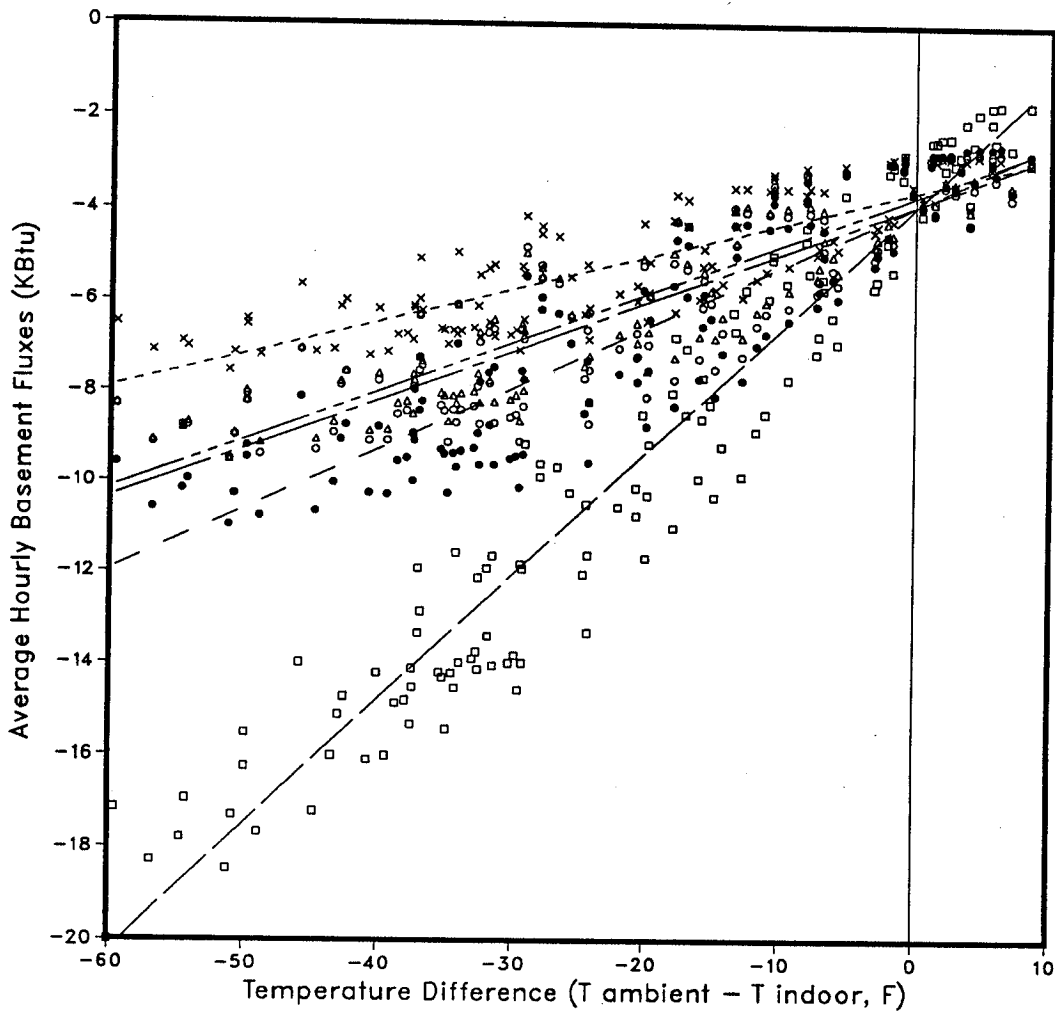
There are three building prototypes covered in the data base: detached one-story, attached two-story townhouse unit, and a low-rise two-story apartment module with an upper and lower unit. Table 1.1 gives the basic building dimensions. These are based on previous LBL prototypes (Huang et al. 1987, Turiel et al. 1986), except that the window area has been increased from 10% to 12% of floor area.

These prototype descriptions were chosen to represent typical current construction practices. Since the final data base is expressed as *component loads* normalized by U-value, floor area, or perimeter length, the dimensions in Table 1.1 should not critically affect the data, unless the surface-to-volume ratios for the prototype buildings are highly atypical. Previous sensitivity analysis of the voluntary energy guidelines data base have already indicated that, in residential buildings, component loads vary linearly with its physical dimension (Huang et al. 1985). †

* The Underground Space Center and LBL have expanded on this approach in later research done for a Foundation Design Handbook. An improved procedure was developed to account for heat flux to the deep ground, as well as long-term seasonal fluctuations in the "U-effective" term. This was done by iterative simulations using the USCUG and DOE-2 programs (Shen et al. 1987).

† *Component load* is defined as the net annual contribution of each building component to the heating or cooling loads of the building. See Section 2 of this report for more discussion of this concept.

Figure 1.8 Regression Analysis of Steady-State U-values for Basement Foundations in One-Story Prototype for Denver CO



Foundation measure	U-effective	Intercept
□ FM0 (uninsulated)	1.647	-3.87
• FM1 (R-5 4 ft.)	.814	-3.86
○ FM2 (R-10 4 ft.)	.654	-3.84
△ FM3 (R-5 8 ft.)	.652	-3.66
× FM4 (R-10 8 ft.)	.438	-3.56

Table 1.1 Prototype Building Dimensions

Building Component	House Prototype		
	Detached One-story	Attached Townhouse	Apartment module (2 units)
Building floor area (ft ²)	1540.0	1200.0	2400.0
Building volume (ft ³)	12320.0	9600.0	19200.0
Roof area (ft ²)	1623.3	632.4	1264.9
Ceiling area (ft ²)	1540.0	600.0	1200.0
Gross wall area (ft ²)	1328.0	640.0	960.0
Net wall area	1123.7	476.5	634.0
Window area	184.8	144.0	288.0
Door area	19.5	19.5	39.0
Foundation floor area (ft ²)	1540.0	600.0	1200.0
Perimeter length (ft)	166.0	40.0	60.0

Although the surface areas and volumes of the three prototypes are based on the typical house designs shown in Section 3.1 of the voluntary energy guidelines technical report (Huang et al. 1987) and the LBL multi-family prototype report (Turiel et al. 1985), an average orientation was achieved for modeling purposes by apportioning the amounts of wall, roof, windows, and door equally in four cardinal directions. Similarly, average shading from two adjacent houses was approximated by modeling building shades with a 0.50 transmittance located 20 feet away on all four sides of the prototype houses. The intent of the simulation is to model a prototypical building under *average*, rather than *typical*, conditions. The non-directional orientation used here, while hardly typical, gives results that are averages of thousands of typical houses with various orientations.

Building Envelope

Insulation

All three prototype buildings were simulated with typical light-weight wood-frame construction, with sensitivity analyses done for heavy mass log and concrete block walls. The assumed ceiling, wall, and foundation construction assemblies are based on Section 3.3.1 of the voluntary energy guidelines technical support document, to which the reader should refer for more details.

Previous analysis of the voluntary energy guidelines data base showed that the relationship between the change in loads and in the steady-state U-value of ceilings and walls to be a smooth and nearly linear function (Huang et al. 1985). The approach taken in the current data base effort has been to simulate not all typical ceiling and wall assemblies, but only enough variations in assembly U-value to determine the function relating component loads to U-values. These regression functions were then used to calculate ceiling and wall component loads based on their U-values.

The WALFERF program was used to calculate response factors and steady-state U-values for typical ceiling and wall assemblies. These are listed in Table 1.2. DOE-2.1C simulations were done for four ceiling (R-0, 19, 38, and 49) and four light-frame wall assemblies (R-0, 11, 19, and 34). For ventilated crawl-space foundations, simulations were done for three floor assemblies (R-0, 11, and 30). Component loads for the intermediate assemblies were interpolated using the regression equations and U-values shown in Table 1.2. For the log and concrete block walls, DOE-2.1C simulations were done for all 15 wall assemblies listed in Table 1.2.

Three foundation types were modeled for every base city: slab-on-grade, heated and unheated basements, and ventilated crawl-space. Heated basement refers to unconditioned basement with insulated basement walls, while unheated basements refers to basements with insulation under the floor of the living space. Fully conditioned basements were not considered. For non-foundation energy conservation options, simulations were done assuming the most prevalent foundation type for each location. These are listed on column 4 of Table 1.7 later in this report.

The assumed foundation configurations are described in Section 3.3.1 of the voluntary energy guidelines technical support document (Huang et al. 1987), to which the reader should refer for details. Five levels of insulation were considered for the slab-on-grade and heated basement foundations, and three for the unheated basement and crawl-space foundations. These are listed in Table 1.3.

The heat fluxes through foundation underground surfaces were simulated using the USCUG two-dimensional finite-difference model and stored onto a large file. The USCUG flux file was then read into the DOE-2 input as a function call in the LOADS portion of that program (see sample DOE-2.1C input file in Appendix A).

The above-grade portion of the basement wall and the slab edge of the slab-on-grade have been included in the USCUG model to account for two-dimensional heat flows within the concrete and subsoil. Crawl-space walls, however, have been simulated as exterior walls using DOE-2.1C. To model the effects of ventilation, the crawl-space has been treated as a separate unconditioned zone with 1 ft² of vents per 30 ft.

**Table 1.2 Steady-state U-values for Building Components
calculated using the WALFERF program**

Building Component	File name	U-values (Btu/hr-F-ft ²)		Film resistances	
		w/ film resistance*	w/o film resistance	Interior	Exterior
Ceilings					
R-0	r0roof	.247034	.321041	.76	.17
R-7	r7roof	.092780	.101803	.76	.17
R-11	r11roof	.068155	.072925	.76	.17
R-19	r19roof	.046033	.048181	.76	.17
R-22	r22roof	.038894	.040401	.76	.17
R-30	r30roof	.029325	.030173	.76	.17
R-38	r38roof	.023549	.024092	.76	.17
R-49	r49roof	.018460	.018792	.76	.17
R-60	r60roof	.015177	.015401	.76	.17
Walls					
R-0 wood-frame	r0rwall	.224129	.277502	.68	.17
R-7 " "	r7rwall	.105057	.115688	.68	.17
R-11 " "	r11rwall	.088104	.095496	.68	.17
R-13 " "	r13rwall	.069298	.073808	.68	.17
R-19 " "	r19rwall	.059977	.063331	.68	.17
R-27 " "	r27rwall	.042740	.044414	.68	.17
R-34 " "	r34rwall	.032154	.033093	.68	.17
4in. log wall	4log	.171422	.200619	.68	.17
6in. " "	6log	.120122	.133764	.68	.17
8in. " "	8log	.092455	.100330	.68	.17
10in. " "	10log	.075146	.080267	.68	.17
12in. " "	12log	.063296	.066891	.68	.17
R-0 95 lb. concrete block	r0cb95	.295528	.394517	.68	.17
R-5 " " " "	r5cb95	.135494	.153107	.68	.17
R-10 " " " "	r10cb95	.080731	.086672	.68	.17
R-15 " " " "	r15cb95	.057599	.060561	.68	.17
R-30 " " " "	r30cb95	.030883	.031714	.68	.17
R-0 120 lb. concrete block	r0cb120	.295527	.394516	.68	.17
R-5 " " " "	r5cb120	.135493	.153107	.68	.17
R-10 " " " "	r10cb120	.080731	.086672	.68	.17
R-15 " " " "	r15cb120	.057599	.060561	.68	.17
R-30 " " " "	r30cb120	.030883	.031714	.68	.17
Floors					
R-0	r0flr	.213667	.316359	.76	.76
R-11	r11flr	.069285	.077474	.76	.76
R-19	r19flr	.047067	.050711	.76	.76
R-30	r30flr	.032783	.034511	.76	.76
R-38	r38flr	.029522	.030917	.76	.76
R-49	r49flr	.020114	.020752	.76	.76

* U-value used for matrix interpolations and regressions

Table 1.3. Foundation Insulation Levels

Floor measure code	Level of Insulation		
	Slab-on grade	Ventilated Crawl-space	Heated and unheated Basements
FM0	Uninsulated	Uninsulated	Uninsulated
FM1	R-5 2ft.	R-11 floor	R-5 4ft. basement wall (heated)
FM2	R-10 2ft.	R-19 floor *	R-10 4ft. basement wall (heated)
FM3	R-5 4ft.	R-30 floor	R-5 8 ft. basement wall (heated)
FM4	R-10 4ft.	R-49 floor *	R-10 8ft. basement wall (heated)
FM5			Uninsulated basement wall, R-11 floor (unheated)
FM6			Uninsulated basement wall, R-30 floor (unheated)

* not used in generating data base

of perimeter. The ventilation air change rate was then modeled using the Sherman-Grimsrud model (Sherman et al. 1980).

Infiltration

The effects of infiltration on building heating and cooling loads have been simulated using the Sherman-Grimsrud model. This is a simplified physical model for air infiltration in residential buildings developed at LBL. "The only information necessary for the model is the geometry and leakage of the structure. The leakage quantities, expressed in terms of *effective areas*, are total leakage area and the leakage areas of the floor and ceiling. Weather parameters are mean wind speed, terrain class, and average temperature difference. The model separates the infiltration problem into two distinct parts: stack and wind-regimes. Each regime is treated separately; the transition between them is sharp. The model has been tested with data from several sites, differing in climate and construction methods." (Sherman et al. 1980).

Parametric simulations were made for each prototype building at three infiltration levels with fractional effective-leakage-areas of 0.0007, 0.0005, and 0.0003, (expressed as a fraction of the total floor area). These conditions can be regarded roughly as tight, average, and loose constructions. For all simulations, the buildings are assumed to be located in areas of low buildings and trees within 30 feet of the house in most directions. The corresponding inputs for the Sherman-Grimsrud model

are: *Shielding-coefficient* = 0.19, *Terrain-parameter 1* = 0.85, and *Terrain-parameter 2* = 0.20. Since the Sherman-Grimsrud model adjusts wind speeds for the height differential between the weather station and the local site, care has been taken to input the tower heights at which the wind speeds were taken. These may vary by month since the WYEC weather tapes used for the simulations are composed of monthly data taken from different years.

Window Characteristics

One of the primary objectives for the current data base effort was to develop more comprehensive coverage of various new glazing products and window designs. With the proliferation of new glazing products, notably low-emissivity coatings, the previous method of simulating typical single-, double-, and triple-pane windows has proven to be too restrictive and ambiguous.

As in the analysis of insulation measures, the approach used for the current data base is not to simulate all possible window conditions, but a wide range of glazing characteristics from which equations can be developed through multiple regression analysis that would relate window component loads to their physical properties, namely *U-values* and *shading coefficients*. Previous LBL research have demonstrated the versatility of this technique for analyzing the energy performance of windows in buildings (Johnson et al. 1983; Sullivan et al. 1985).

The use of shading coefficient to describe window solar gain is approximate, but the errors thereby introduced are tolerable, and more than offset by common understanding of this term, and the availability of such data from window manufacturers or research institutions. For example, the WINDOW 2.0 microcomputer program can be used to calculate shading coefficients for any glazing product given its glass optical properties and construction (Windows and Daylighting Group 1986).

For the data base, DOE-2 simulations were done for three levels of window U-value while keeping shading coefficient fixed at 1.00, equivalent to clear single-pane windows (Table 1.4). These first U-values correspond to the ASHRAE value for single-pane windows, the second to that for double-pane windows with 1/2 inch air gap, and the third to a super window more efficient than any currently available product. The three data points thus span the range of possible U-values to be found in window products in the foreseeable future.

To analyze the effect of solar gain through windows, four shading coefficients were considered: 1.00, 0.666, 0.333, and 0.000. The first two cover the range of

Table 1.4. Window U-values

Number of Panes	File name	U-values (Btu/hr-F-ft ²)		Outside film resistance
		w/outside film resistances *	w/o outside film resistances	
Single-pane	1-pane	1.100	1.353	.17
Double-pane	2-pane	0.490	0.535	.17
Multiple-pane	M-pane	0.098	0.100	.17

* corresponds to ASHRAE U-values used for interpolations and regressions.

shading coefficients found in clear glass windows, and the second and third that found in some reflective glazings. The last shading coefficient corresponds to a totally opaque window, which is useful for diagnostic purposes. In the shading coefficient sensitivities, the glass U-value was held constant at 0.49, equivalent to double-pane windows.

Table 1.5 is shown for reference. It gives shading coefficients for common glazing products calculated using the WINDOW 2.0 program. These shading coefficients can be used with the multiple regression results to interpolate window solar component loads.

**Table 1.5. Shading Coefficients for Typical Glazing Products
calculated using the WINDOW 2.0 program**

Glass Type	Number of panes	DOE-2 Glass Type Code	Shading Coefficient	
			WINDOW 2.0	Adjusted *
Regular	1	1	1.038	1.000
	2	1	.944	.909
	3	1	.865	.833
Reflective	1	10	.370	.356
	2	10	.287	.276
	3	10	.262	.252
Heat Absorbing	1	6	.727	.700
	2	6	.609	.587
	3	6	.542	.522

* Shading coefficient is defined as the solar heat gain ratio relative to that for a reference glazing material, generally double-strength clear sheet glass at normal incidence (ASHRAE 1985). Due to slight differences in the assumed optical properties of clear glass compared to DOE-2.1, the WINDOW 2.0 program calculated a shading coefficient slightly higher than 1.00 for the base case single-pane glazing. In Column 4, these values have been adjusted to yield 1.00 for the base case.

Building Operating Conditions

The assumed building operating conditions are taken from Section 4.0 of the voluntary energy guidelines technical document, to which the reader is referred for more details. The following describes only those operating conditions that have been modified from the earlier voluntary energy guidelines data base.

1. The heating thermostat setting has been changed to 70° F all day, with no night setback.
2. The internal loads profile has been changed from that shown in Table 4.4b of the voluntary energy guidelines technical document to that developed by the California Energy Commission for their Title 24 Residential Energy Standards (Figure 1.9 and Table 1.6).

Table 1.6. Internal Loads Schedule

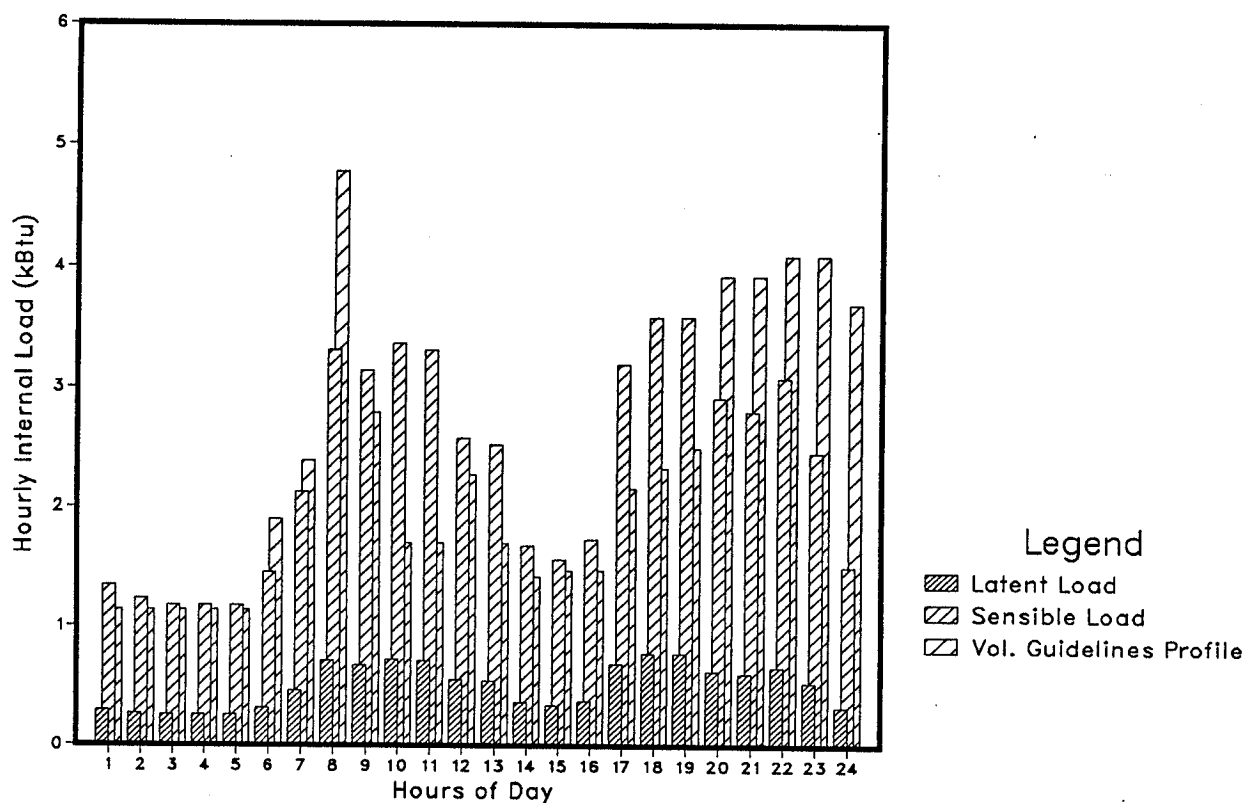
Hour of day	Internal load (Btu)	Hour of day	Internal load (Btu)
1	1346	13	2525
2	1234	14	1683
3	1178	15	1571
4	1178	16	1739
5	1178	17	3198
6	1459	18	3591
7	2132	19	3591
8	3310	20	2917
9	3142	21	2805
10	3366	22	3086
11	3310	23	2469
12	2581	24	1215

The new profile shows an internal loads peak in the evening due to cooking loads, plus a smaller peak at breakfast time. Although the new internal loads profile has not been validated, we believe it is more typical than the previous profile used by LBL, which showed the highest peak at 8 a.m., and a secondary peak at 11 p.m.

3. A time of day schedule has been added to the building ventilation that assumes occupants will not open windows for natural ventilation between 11 p.m. and 7 a.m. even if it is desirable to do so. If the windows are open at 11 p.m., they are

assumed open through the night unless indoor temperatures drop below 70° F. Windows are assumed closed below that temperature to avoid picking up spurious heating loads. The venting algorithm has also been changed from a fixed air change rate to a variable rate calculated using the Sherman-Grimsrud residential infiltration model. It is assumed that opened windows have an "effective-leakage-area" only 30% of the total glazing area, due to obstructions and physical constraints that limit maximum openable area to half of the window area. *

Figure 1.9 Internal loads profile for a
1540 ft² 1-Story prototype house



* The natural ventilation algorithm is an enhancement to the DOE-2.1C program not available on the current public release version of DOE-2.1C. However, it will be included in future release versions.

Building Locations

The base cities included in the data base are the 45 cities used for the voluntary energy guidelines data base. For this current work, however, simulations were done using WYEC (Weather Year for Energy Calculations) weather tapes (Crow 1981). These weather data are judged to be more reliable for estimating average annual energy consumptions than the TRY weather tapes used for the voluntary energy guidelines data base. For the twelve locations for which WYEC weather tapes were unavailable, TMY weather tapes were used (Table 1.7).

Table 1.7 Building locations for residential data base

Building location	Weather tape		Prevalent foundation type
	WYEC	TMY	
Albuquerque NM	X		Slab
Atlanta GA	X		Slab
Birmingham AL	X		Slab
Bismarck ND	X		Basement
Boise ID	X		Basement
Boston MA	X		Basement
Brownsville TX	X		Slab
Buffalo NY		X	Basement
Burlington VT		X	Basement
Charleston SC	X		Crawl-space
Cheyenne WY	X		Basement
Chicago IL	X		Basement
Cincinnati OH		X	Basement
Denver CO	X		Basement
El Paso TX	X		Slab
Fort Worth TX	X		Slab
Fresno CA		X	Slab
Great Falls MO	X		Basement
Honolulu HA		X	Slab
Jacksonville FL		X	Slab
Juneau AK		X	Basement
Kansas City MO	X		Basement
Lake Charles LA	X		Slab
Las Vegas NV	X		Slab
Los Angeles CA	X		Slab
Medford OR	X		Crawl-space
Memphis TN		X	Crawl-space
Miami FL	X		Slab
Minneapolis MN	X		Basement
Nashville TN	X		Slab
New York NY	X		Basement
Oklahoma City OK	X		Slab
Omaha NB	X		Basement
Philadelphia PA		X	Basement
Phoenix AZ	X		Slab
Pittsburgh PA	X		Basement
Portland ME	X		Basement
Portland OR	X		Crawl-space
Reno NV		X	Slab
Salt Lake City UT	X		Basement
San Antonio TX	X		Slab
San Diego CA		X	Slab
San Francisco CA		X	Slab
Seattle CA	X		Basement
Washington DC	X		Basement

ANALYSIS OF BUILDING HEATING AND COOLING LOADS

Component Loads

The new residential data base utilizes the concept of component loads developed through previous analysis of the voluntary energy guidelines data base. *Component loads* are defined as the net annual contribution of each building component to the heating or cooling loads of the building (Huang et al. 1985). They are calculated in a two-step process. First, Δ loads are calculated for different conservation levels in each component (ceiling, wall, window, etc.) relative to an arbitrarily chosen base case. Regression analysis is then done correlating these Δ loads to key physical parameters associated with each building component. For insulation, the parameter used is the steady-state conductance of the ceiling, wall, foundation, or window; for infiltration, the parameter is the effective-leakage-area; and for window solar gain, the solar aperture (shading coefficient * window area).

At the y-intercept of the regression curve, the component load is assumed to be zero. This corresponds to zero conductance for insulation, zero leakage-area for infiltration, and zero solar aperture for the solar gain measures. The component loads for the simulated cases are thus only a function of the regression curve:

$$\text{Component Load}_{\text{ceilings,walls,floors}} = f(\text{conductance}) \quad [1]$$

$$\text{Component Load}_{\text{infiltration}} = f(\text{effective-leakage-area}) \quad [2]$$

$$\text{Component Load}_{\text{solar gain}} = f(\text{solar aperture}) \quad [3]$$

The component loads thus calculated can be used to estimate the total loads for variations of the prototype house:

$$\begin{aligned} \text{Total Load} = & [(\text{Component Load}_{\text{ceiling}} * UA_{\text{ceiling}}) \quad [4] \\ & + \text{Component Load}_{\text{wall}} * UA_{\text{wall}}) \\ & + (\text{Component Load}_{\text{window}} * UA_{\text{window}}) \\ & + (\text{Component Load}_{\text{solar gain}} * \text{Window solar aperture}) \\ & + (\text{Component Load}_{\text{foundation}} * UA_{\text{foundation}}) \\ & + (\text{Component Load}_{\text{infiltration}} * \text{Effective-leakage-area}) \\ & + \text{Residual Load} \end{aligned}$$

The *residual load* is the difference between the total loads computed by this method and those from a DOE-2 simulation. They represent the net effect of internal loads and interactions not included in the component regression analyses.

To calculate Δ loads for insulation measures, 30 DOE-2 simulations were done for each prototype building in the 45 locations. Table 2.1 describes the thermal characteristics of the house for each parametric simulation. The arrows on the table indicate which simulations were used to derive Δ loads for successive insulation levels. These simulations are identical except for the change in insulation level in a single component. Cumulative Δ loads are derived by summing successive Δ loads, and are actually composite values that assume all building components are thermally tightened in unison. For example, the Δ load from R-0 to R-38 ceiling is the sum of the Δ load from R-0 to R-19 ceiling on a loose uninsulated house, plus the Δ load from R-19 to R-38 ceiling on a moderately insulated house. This procedure produces Δ loads that are most representative of typical construction practices.

Ceiling and Wall Measures

The data base includes Δ loads for the following ceiling and wall insulation measures: R-0, R-19, R-38, and R-60 ceilings, and R-0, R-11, R-19, and R-34 light-frame walls. A quadratic curve fit was developed through regression analysis, using the U-value of the ceiling or wall as the independent variable, and its area as a scalar:

$$\text{Component Load} = A * (U * \text{Coef}_{\text{linear}} + U^2 * \text{Coef}_{\text{quadratic}}) \quad [5]$$

Sample regression plots for four cities are shown in Figures 2.1 through 2.4.

The computed and interpolated total Δ loads, and component loads per ft², are shown on the tables in Section 3.A. The regression coefficients used for the interpolated values are listed on the tables directly below the Δ and component loads. "Slope" is the linear coefficient and in units of degree-days. "Curve" is the quadratic coefficient and in units of (degree day)²·ft²/Btu. The total component load of the ceiling or wall can be calculated as follows:

$$\text{Component Load (Btu)} = A * (U * \text{Slope} * 24 + U^2 * \text{Curve} * 576) \quad [6]$$

For example, for ceiling heating loads in Albuquerque the table in Section 3.A gives a "slope" of 4468.29 degree-days, and a "curve" of -111.14 degree day²·ft²/Btu. Since the U-value of a R-0 ceiling is .24703, the component heating load for an

**Table 2.1 List of DOE-2.1C Runs for Parametric
Analysis of Insulation Measures**

(↓'s indicate runs used to derive Δ loads for incremental measures)

Option code	No. of runs	Ceiling R-value	Wall R-value	Foundation measures			Effect. Leak. frac.	Window U-value
				Slab	Basement	Crawl		
A00	1	R-0↓	R-0	FM0 prevalent found.†			.0007	1.35
C00	1	R-19	R-0↓	FM0 prevalent found.			.0007	1.35
D00	1	R-19	R-11	FM0 prevalent found.			.0007↓	1.35
D01	3	R-19	R-11	FM0↓	FM0↓	FM0↓	.0005	1.35
E01	3	R-19	R-11	FM1	FM1	FM1	.0005	1.35↓
F02	1	R-19↓	R-11	FM1 prevalent found.			.0005	.535
H09	1	R-38	R-11↓	FM1 prevalent found.			.0005	.535
I06	3	R-38	R-19	FM1↓	FM1↓	FM1↓	.0005	.535
J01	3	R-38	R-19	FM2	FM2↓	FM2	.0005↓	.535
M02	1	R-38	R-19	FM5↓			.0005	.535
N09	1	R-38	R-19	FM6↓			.0005	.535
J51	1	R-38↓	R-19	FM2 prevalent found.			.0003	.535
L60	1	R-60	R-19↓	FM2 prevalent found.			.0003	.535
N55	3	R-60	R-34	FM2↓	FM2↓	FM2↓	.0003	.535
O54	2	R-60	R-34	FM3↓	FM3↓	FM3↓	.0003	.535
P53	3	R-60	R-34	FM4	FM4	FM4	.0003	.535↓
Q52	1	R-60	R-34	FM4 prevalent found.			.0003	.100

Total = 30 runs

† prevalent foundation based on NAHB survey of foundation types in each city and listed in Table 1.6; See Table 1.3 for explanation of foundation code.

Figure 2.1 Correlations of Δ Ceiling Heating Loads to U-values

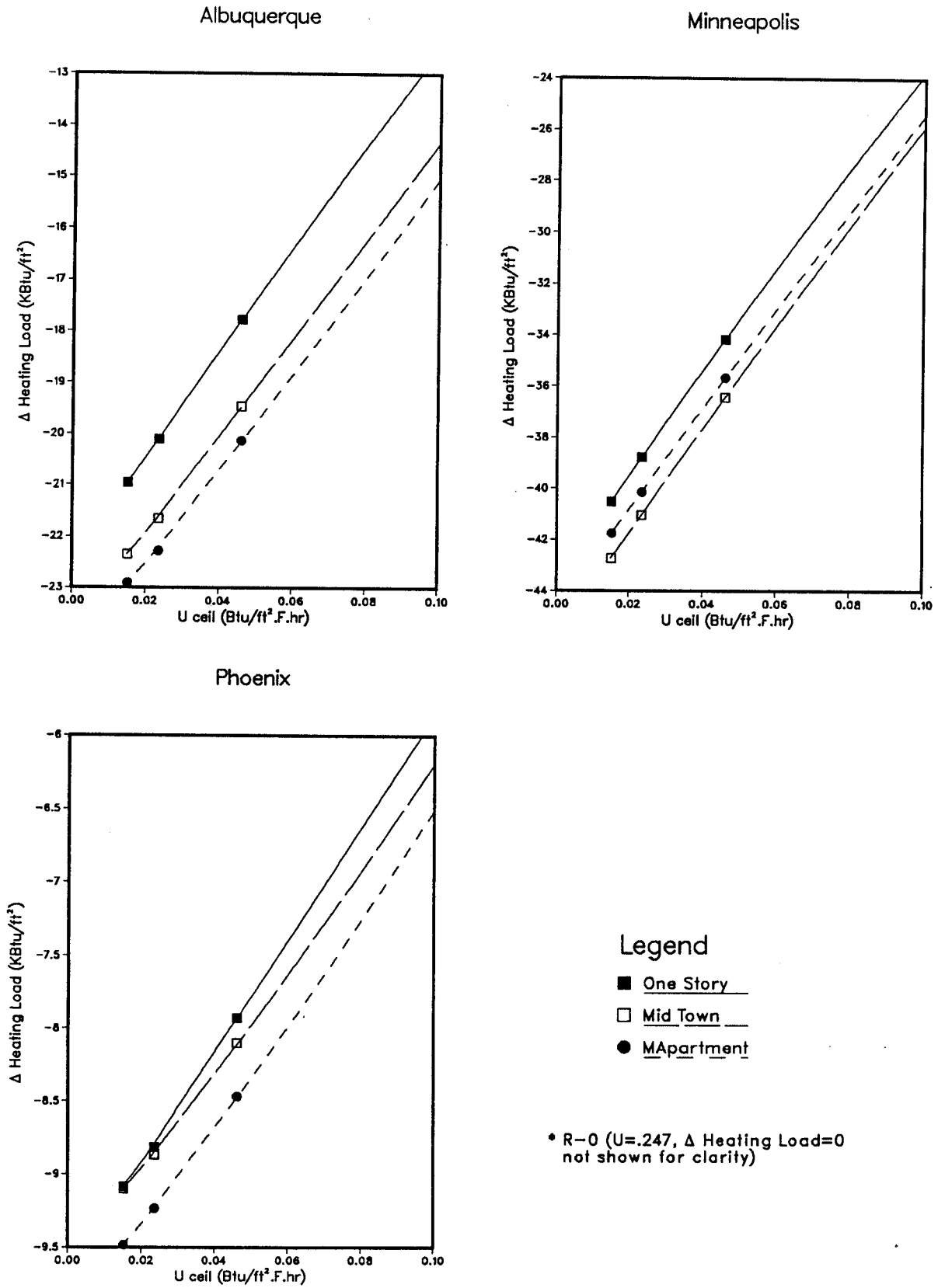


Figure 2.2 Correlations of Δ Ceiling Cooling Loads to U-values

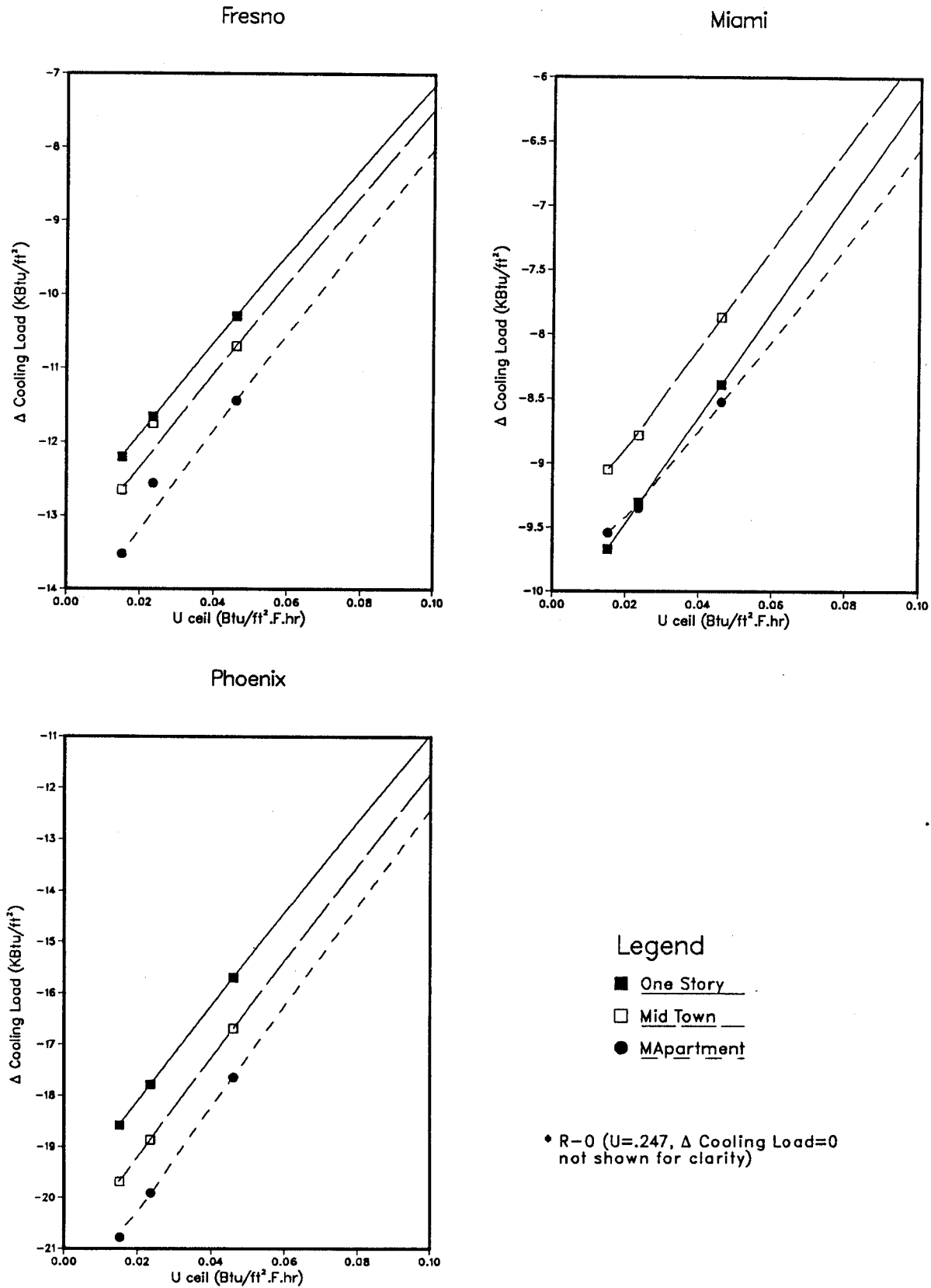


Figure 2.3 Correlations of Δ Wall Heating Loads to U-values

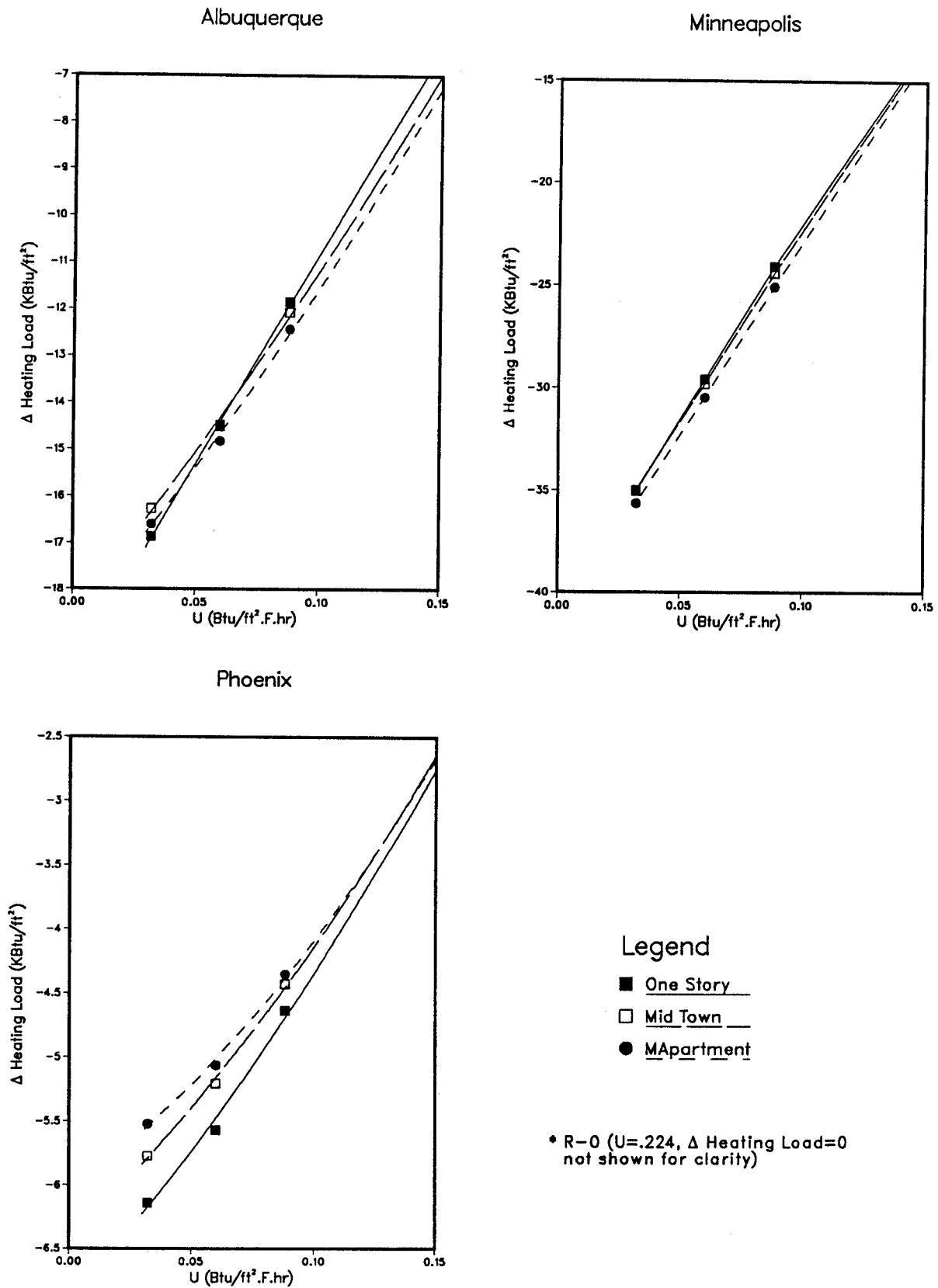
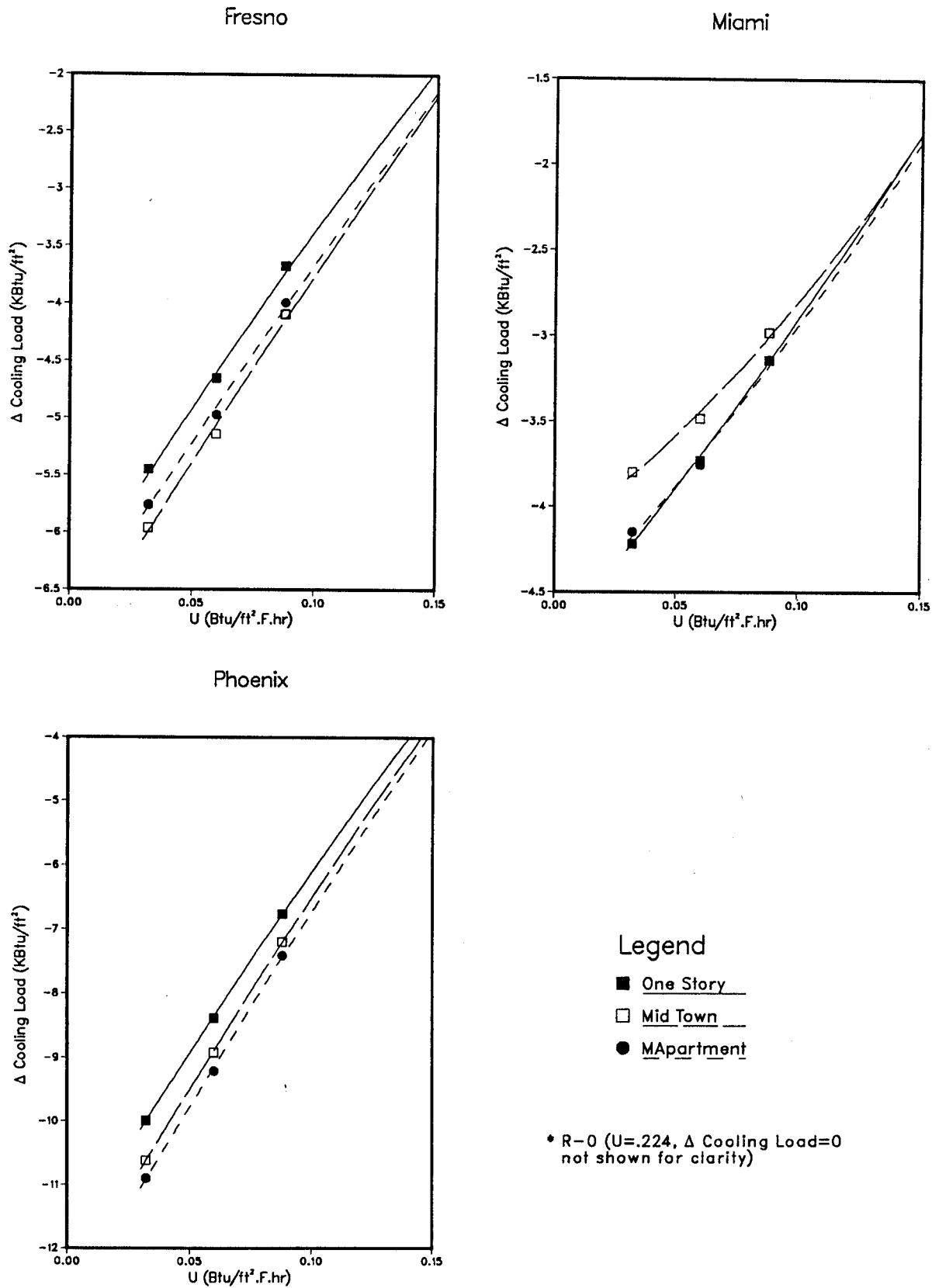


Figure 2.4 Correlations of Δ Wall Cooling Loads to U-values



uninsulated ceiling in a 1540 ft² house would be:

$$1540 * (.24703 * 4468.29 * 24 - .06102 * 111.14 * 576) \text{ Btu} \quad [7]$$

or

$$40.797 - 6.016 \text{ MBtu} = 34.781 \text{ MBtu}$$

To analyze the effect of mass walls on energy use, simulations were done in the one-story prototype for five thicknesses of log walls (4, 6, 8, 10, and 12 inches), and five levels of interior insulation (R-0, R-5, R-10, R-15, R-30) in both 95 lb. and 120 lb. concrete block walls. For log and concrete block walls with less than R-10 insulation, the house was simulated with R-19 ceiling, R-11 wall, uninsulated foundation, single-pane windows, and 0.0005 effective-leakage-fraction. For concrete block walls above R-10, the house was simulated with R-38 ceiling, R-19 wall, and R-10 foundation insulation, double-pane windows, and 0.0005 effective-leakage-fraction. Mass walls with exterior insulation were not simulated.

A quadratic curve fit was derived through regression analysis, using the steady-state U-value of the mass wall as the independent variable, and the wall area as a scalar. In addition to the two regression coefficients, an intercept was also calculated for the Δ load in kBtu/ft² from a light-frame wall to the uninsulated mass wall. The following equation defines the component load for a mass wall:

$$\begin{aligned} \text{Component Load (Btu)} = & \text{Area} * (\text{U} * \text{Slope} * 24 + \text{U}^2 * \text{Curve} * 576) \quad [8] \\ & + \text{Area} * \text{Intercept} * 10^3 \end{aligned}$$

Two typical regression plots are shown in Figures 2.5 through 2.8. These indicate the Δ loads between light-frame and mass walls of the same steady-state U-value, as well as the nonlinearity in cooling Δ loads compared to U-values for mass walls in cities with large daily temperature swings such as Fresno.

The Δ and component loads and regression coefficients for the three mass wall types are presented in Section 3.B. The format of the tables are identical to those in Section 3.A and explained earlier in this section.

Foundation Insulation Measures

The data base includes simulation results for five insulation levels in the slab-on-grade (uninsulated, R-5 extending down 2 ft. and 4 ft., and R-10 extending down 2 ft. and 4 ft.), and the heated basement (uninsulated, R-5 extending down 4 ft. and 8 ft., and R-10 extending down 4 ft. and 8 ft.), three in the unheated basement (uninsulated,

Figure 2.5 Correlation of Δ Heating Loads to U-values for Mass Walls for Fresno CA

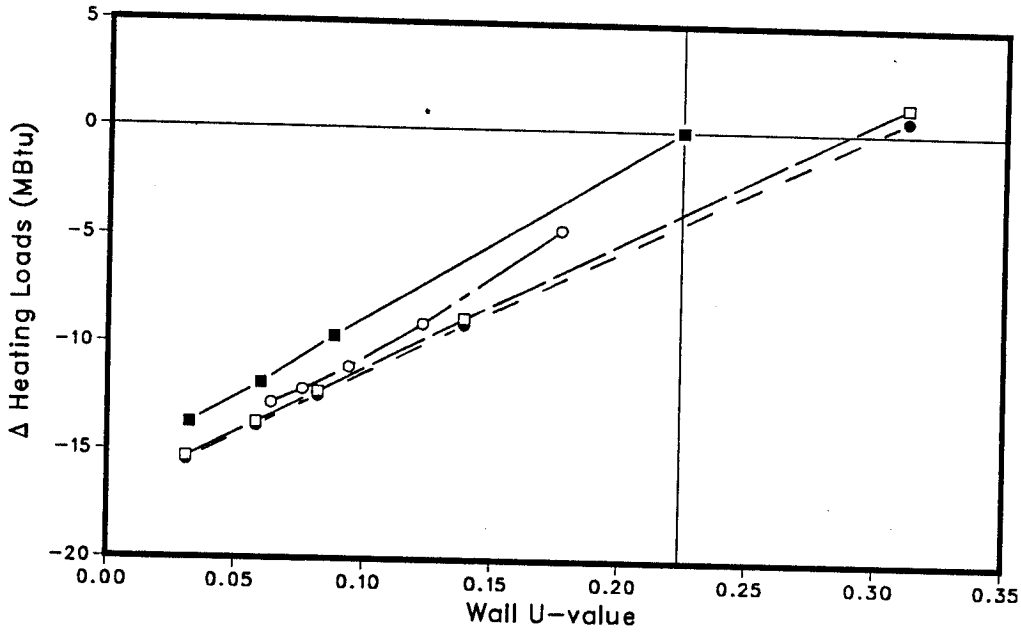
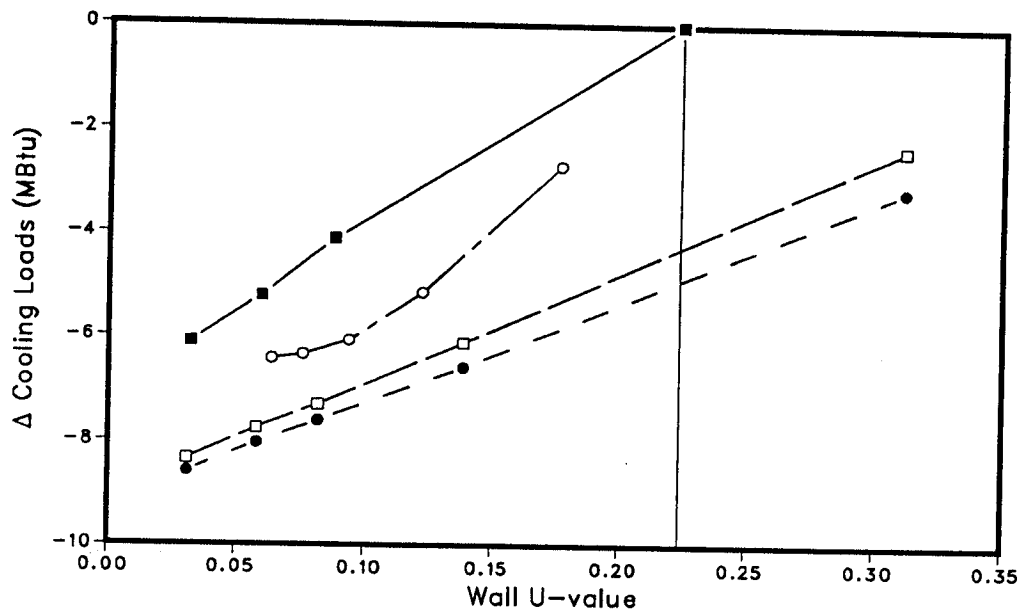


Figure 2.6 Correlation of Δ Cooling Loads to U-values for Mass Walls for Fresno CA



Legend

- Wood-frame R-34,19,11,0
- 95lb ConcBlock R-30,15,10,5,0
- 120lb ConcBlock R-30,15,10,5,0
- Log 12,10,8,6,4 in

Figure 2.7 Correlation of Δ Heating Loads to U-values for Mass Walls for Buffalo NY

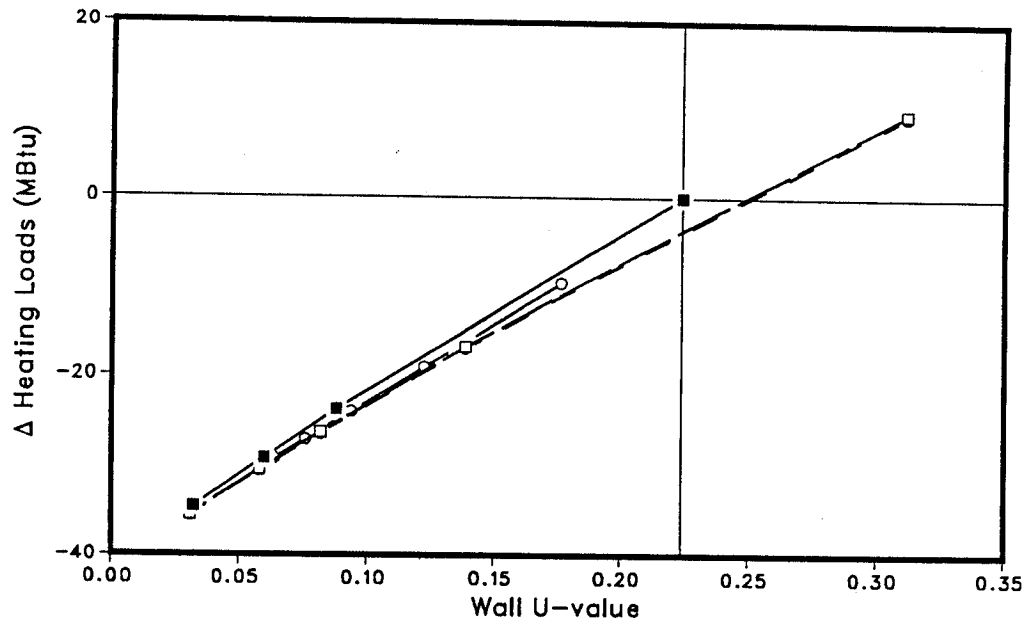
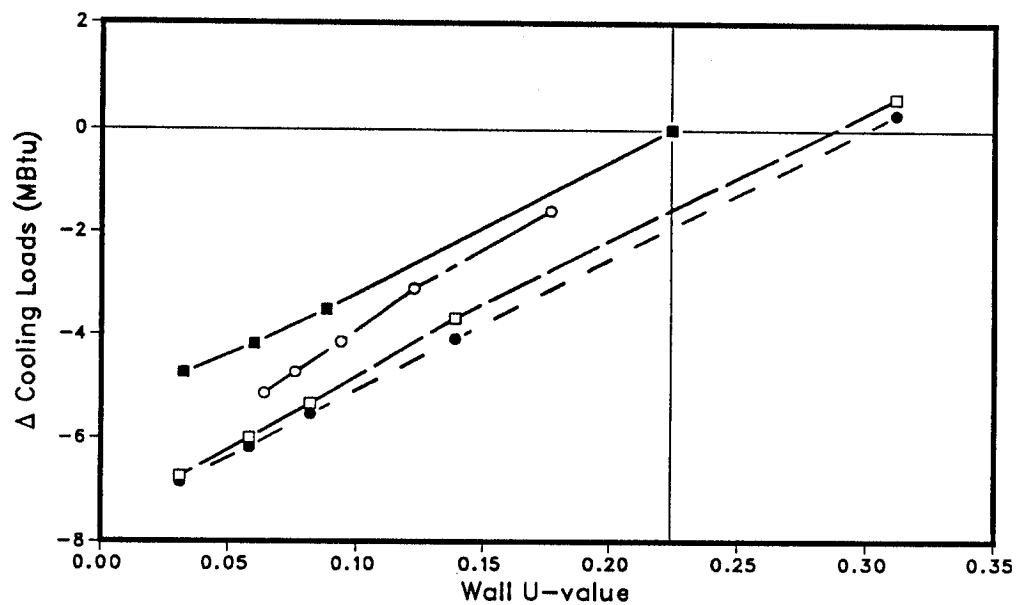


Figure 2.8 Correlation of Δ Cooling Loads to U-values for Mass Walls for Miami FL



Legend

- Wood-frame R-34,19,11,0
- 95lb ConcBlock R-30,15,10,5,0
- 120lb ConcBlock R-30,15,10,5,0
- Log 12,10,8,6,4 in

R-11, and R-30 under the floor), and four in the vented crawl-space foundation (uninsulated, R-11, R-19, and R-38 under the floor).

For the slab and heated basement conservation measures, quadratic curve fits were derived through regression analyses, using steady-state "U-effectives" from the USCUG model as the independent variable and the perimeter length as a scalar. These correlations are approximate due to the complex heat flow paths and thermal storage effects of the foundation and subsoil (Figures 2.9 through 2.12). As a result, we did not use the quadratic coefficients in the data base, but stored instead the component loads for each individual measure, normalized by the *perimeter length* of the prototype buildings. These appear on the tables in Section 3.A in units of kBtu's per perimeter foot. The regressions, however, were needed to determine the y-intercept when the "U-effective" is 0. At this condition, the foundation component load was assumed to be zero.

For under-floor insulation measures in the unheated basement and crawl space foundations, quadratic curve fits were derived through regression analyses, using the floor U-value as the independent variable and the floor area as a scalar (Figures 2.13 to 2.16). Although the Δ loads are nonlinear due to interactions between the conditioned space and the basement or crawl space, they vary monotonically with floor U-value and can be reduced to regression coefficients. Equation 6 is used to estimate component loads for these foundation measures from the coefficients. The Δ and component loads and regression coefficients are given in Section 3.A in the same format as for ceilings and walls.

The differences in energy use between building foundation type is indicated by the "intercepts" in Section 3.A. These are given relative to the prevailing foundation type in each location (Table 1.7) and in units of kBtu's per perimeter feet for the slab and heated basement and per ft² of floor area for the unheated basement and crawl space foundations. These can be regarded as Δ loads not accounted for by the calculated building k-value.

Infiltration

The data base includes simulation results for the following three levels of infiltration: 0.0007, 0.0005, and 0.0003 effective-leakage-fractions (ELF). A quadratic curve fit was computed through regression analysis, using .001 ELF of the house as the independent variable, and the floor area as a scalar:

$$\text{Comp. Load (kBtu)} = \text{Area} * (\text{ELF} * 10^3 * \text{Slope} + \text{ELF}^2 * 10^6 * \text{Curve}) \quad [9]$$

Figure 2.9 Correlation of Δ Slab Foundation Heating Loads to Effective U-values

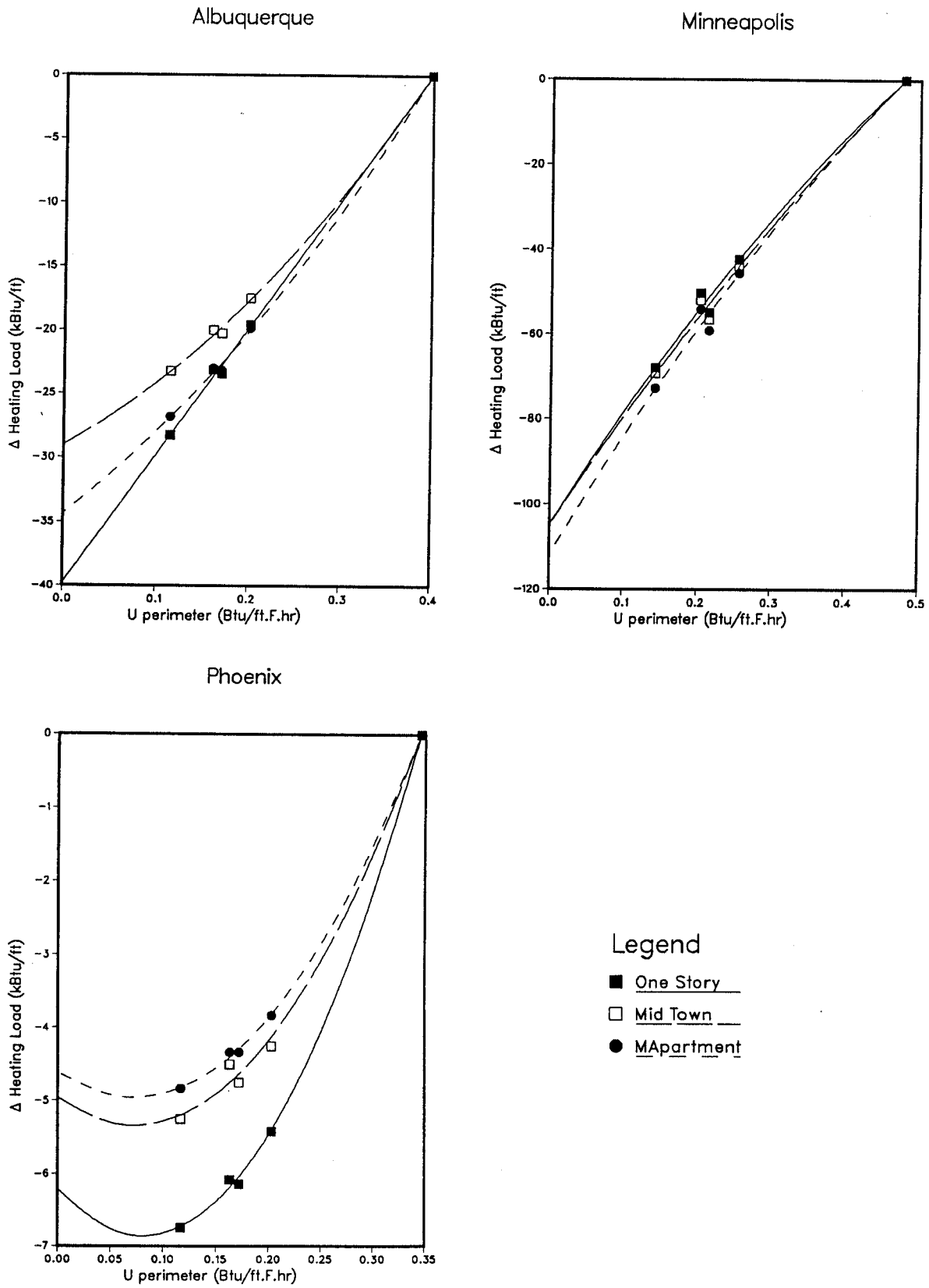


Figure 2.10 Correlation of Δ Slab Foundation Cooling Loads to Effective U-values

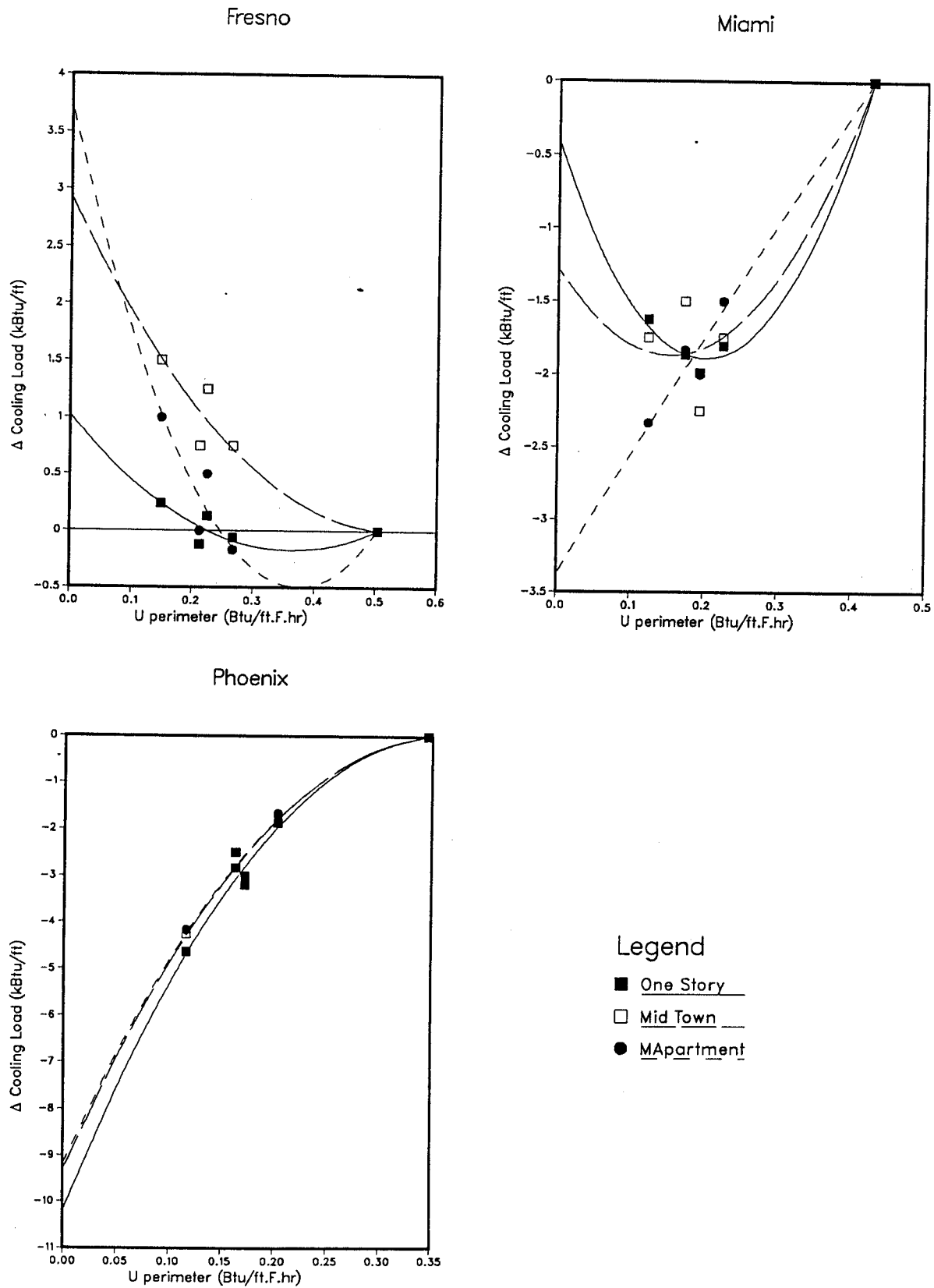


Figure 2.11 Correlation of Δ Heated Basement Heating Loads to Effective U-values

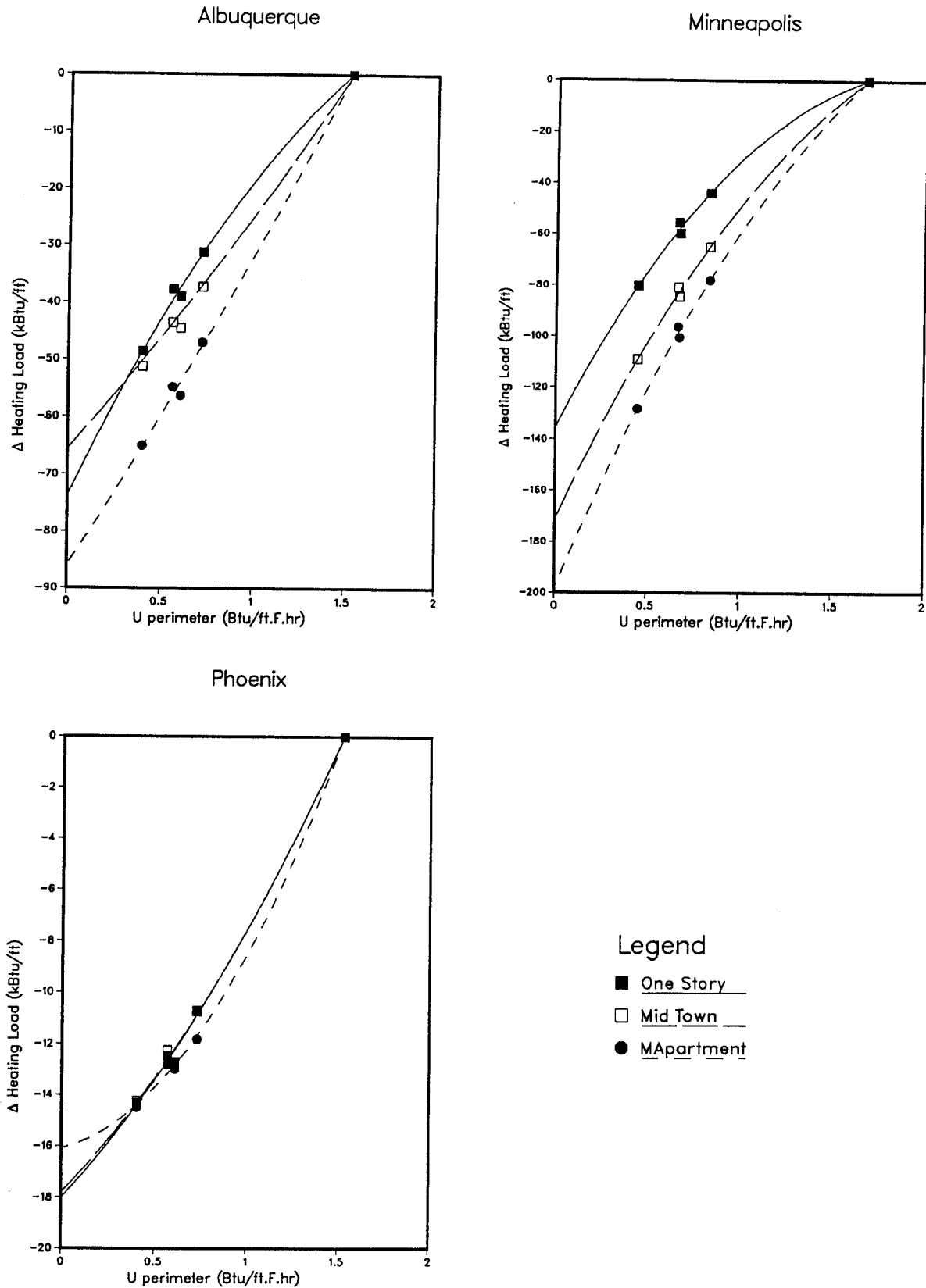


Figure 2.12 Correlation of Δ Heated Basement Cooling Loads to Effective U-values

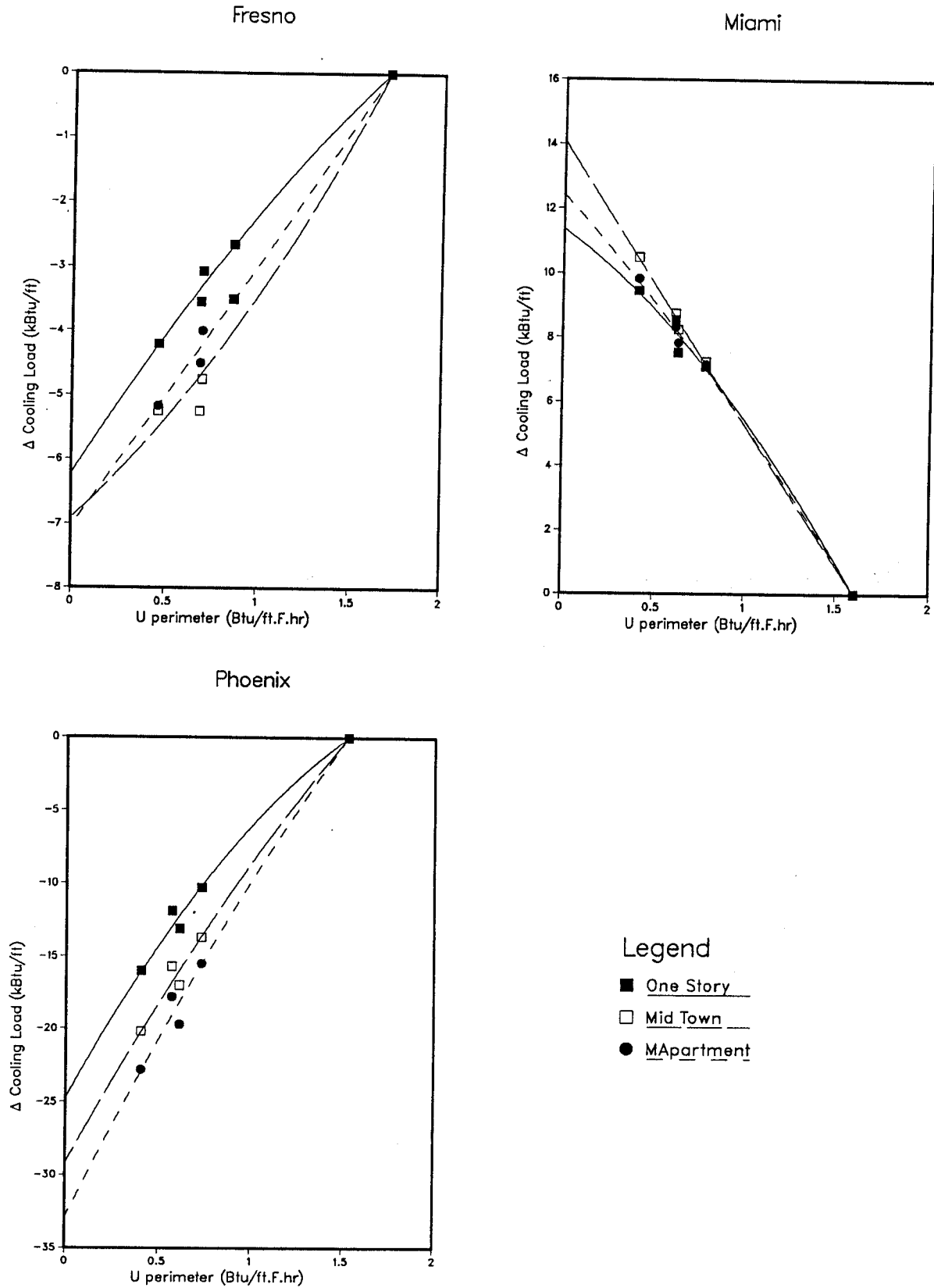


Figure 2.13 Correlation of Δ Unheated Basement Heating Loads to Effective U-values

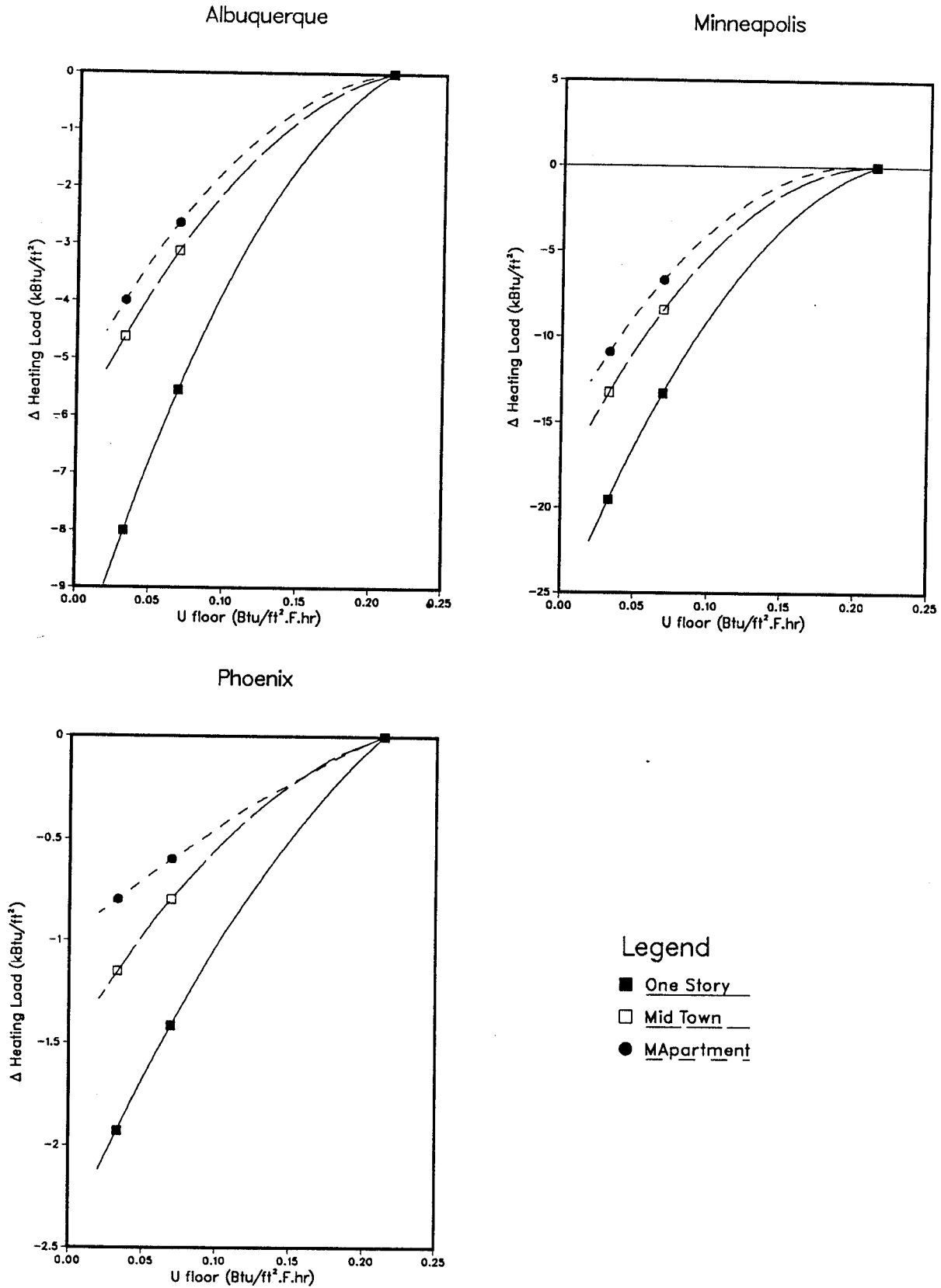
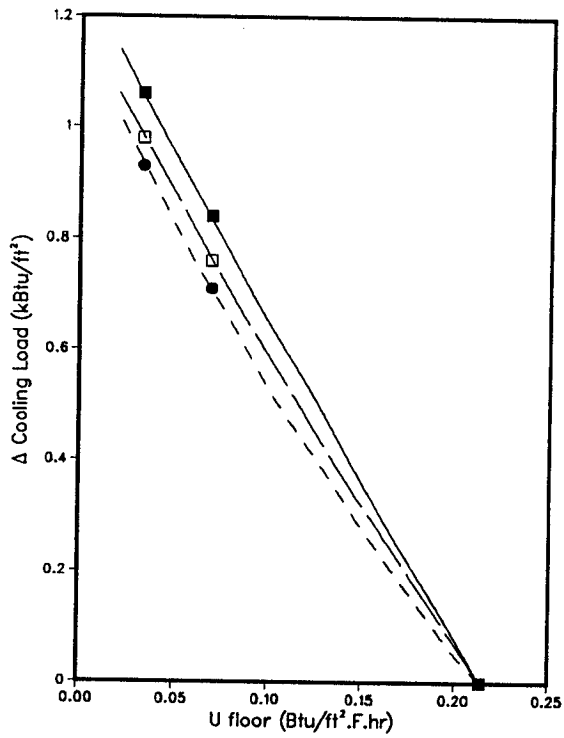
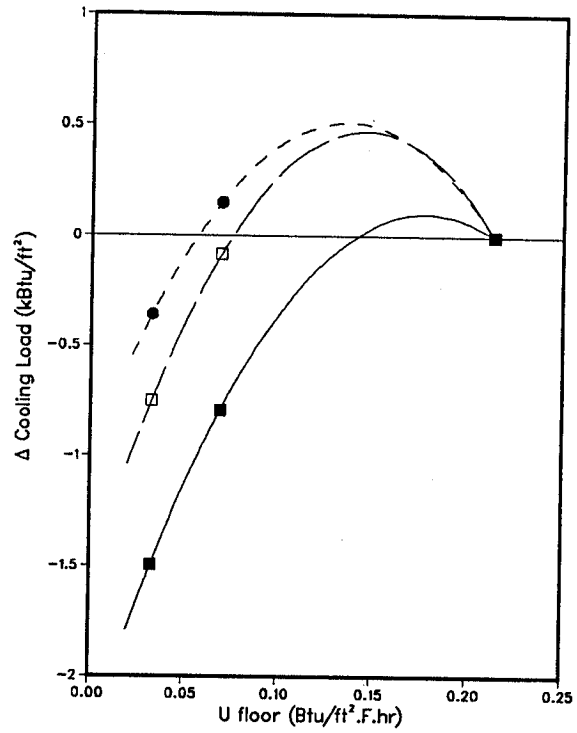


Figure 2.14 Correlation of Δ Unheated Basement Cooling Loads to Effective U-values

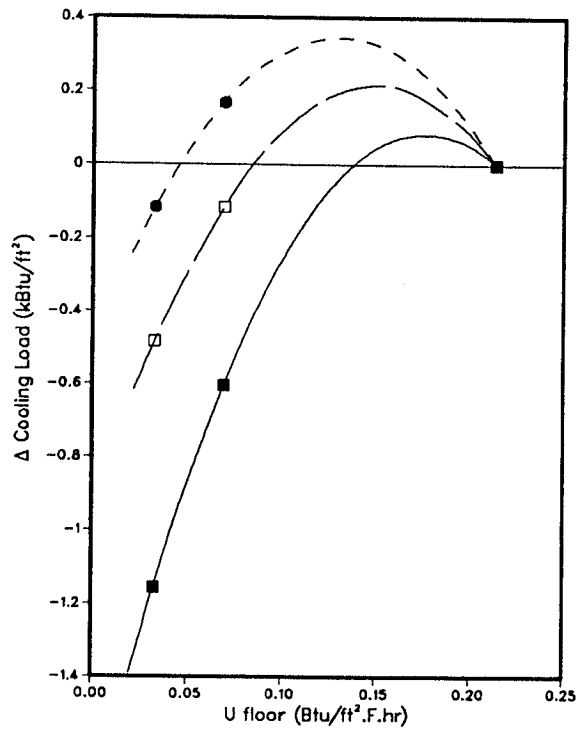
Fresno



Miami



Phoenix



Legend

- One Story
- Mid Town
- MApartment

Figure 2.15 Correlation of Δ Crawl Foundation Heating Loads to Floor U-values

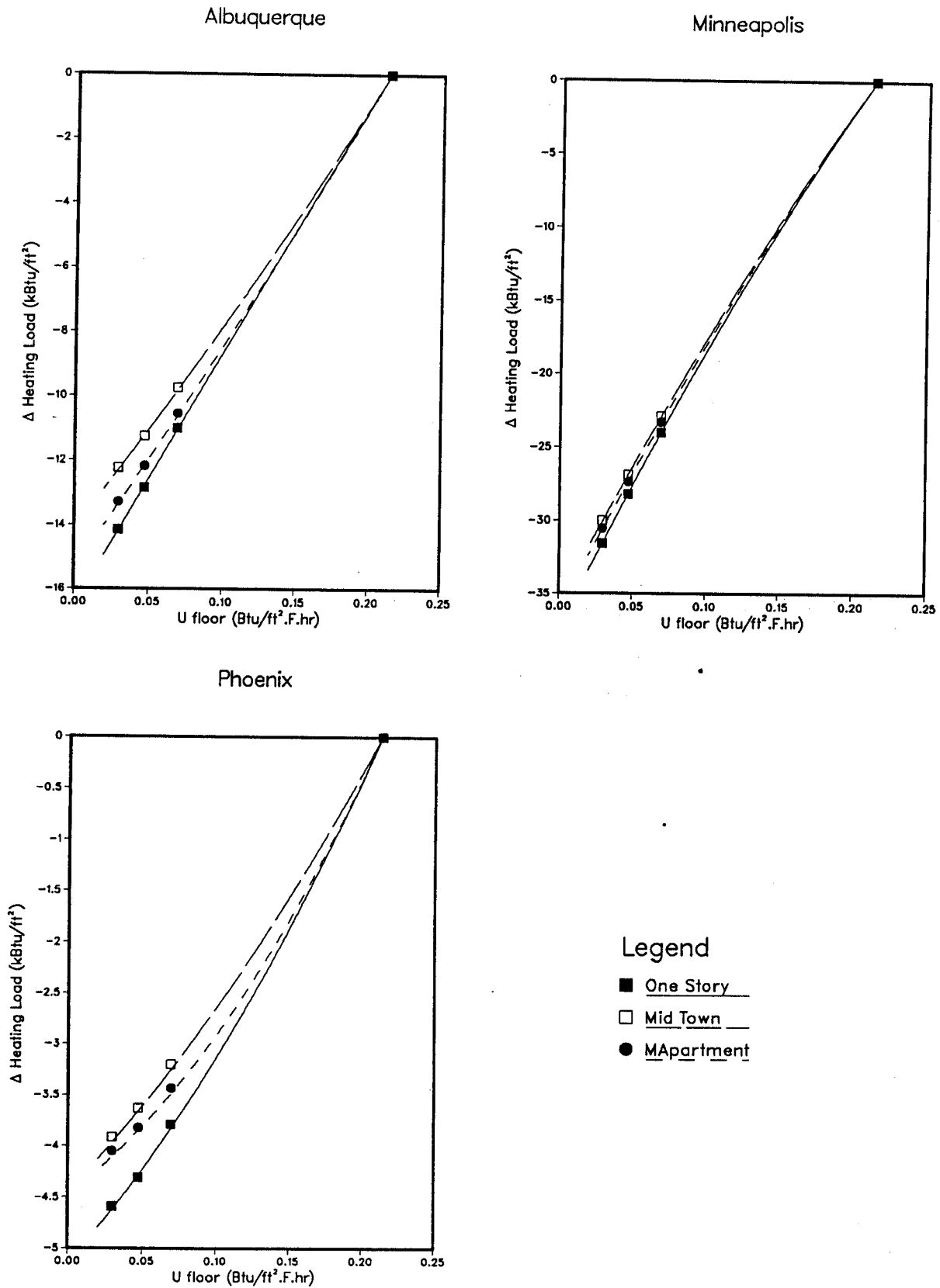
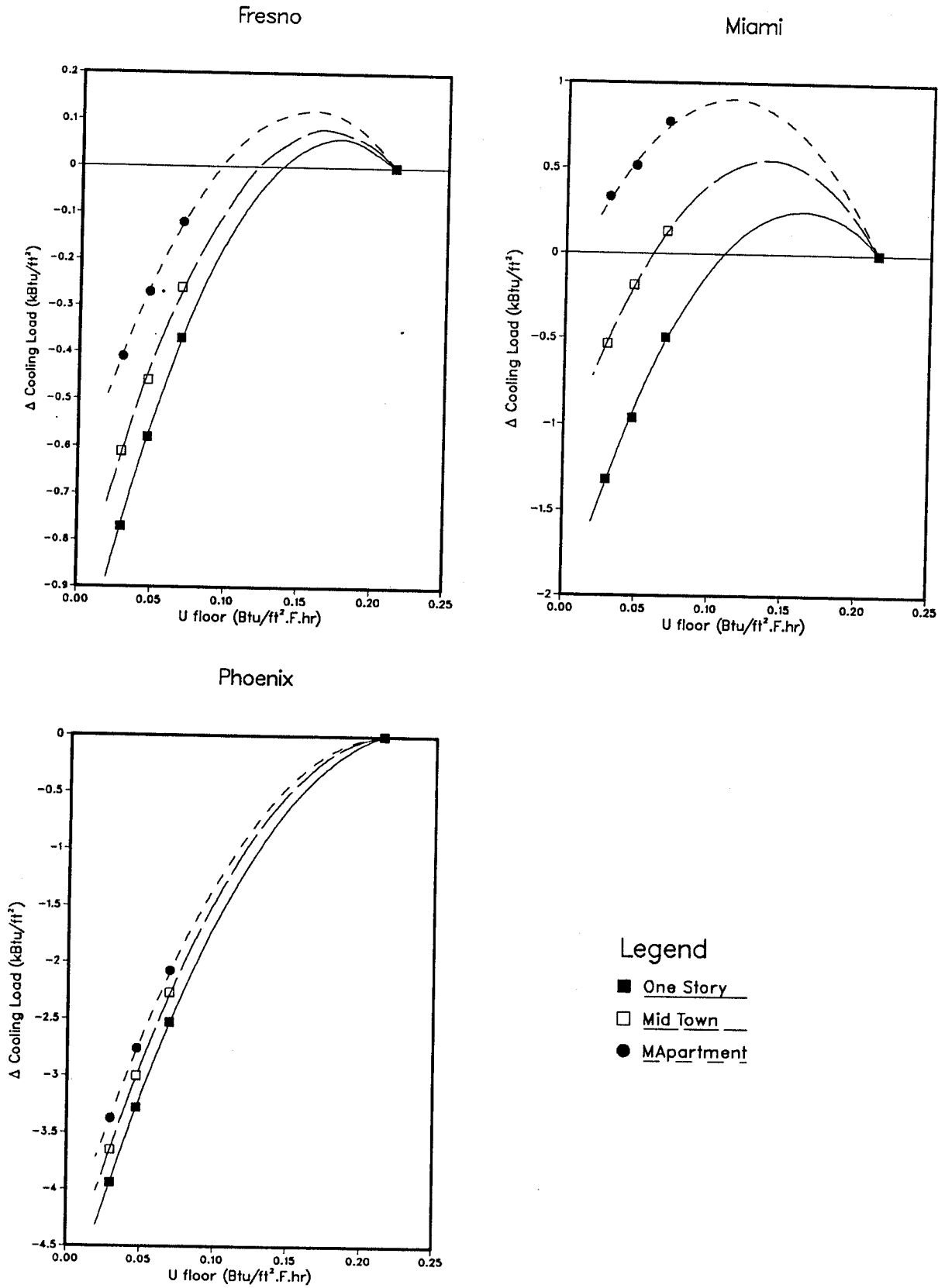


Figure 2.16 Correlation of Δ Crawl Foundation Cooling Loads to Floor U-values



Sample plots of these regressions for four cities are shown in Figures 2.17 through 2.18. A function has also been added to the DOE-2.1C input to calculate the average infiltration air change rate for the three effective-leakage-fractions for each location and prototype.

The tables in Section 3 give the total Δ loads and component loads per ft² of floor due to infiltration, and the coefficients from the regression analyses. "Slope" is the linear regression coefficient in units of kBtu per .001 ELF, "Curve" is the quadratic coefficient in units of kBtu per (.001 ELF)².

The numbers in parenthesis next to the effective-leakage-fractions are the corresponding average yearly infiltration rates in *ach* (air changes/hour). As shown in Figure 2.19, these are location-specific, but linearly dependent on effective-leakage-fraction within a particular location.

Windows

To analyze the impact on building loads due to changes in window U-value, three simulations were done for each prototype house and base city for 12% equally distributed windows with a constant shading coefficient of 1.00, and window U-values of 1.10, 0.49, and 0.10 (see Table 1.4). The assumed thermal integrity for the rest of the building is indicated in Table 2.1. Quadratic regressions were done, using the U-value of the window as the independent variable, and its area as a scalar:

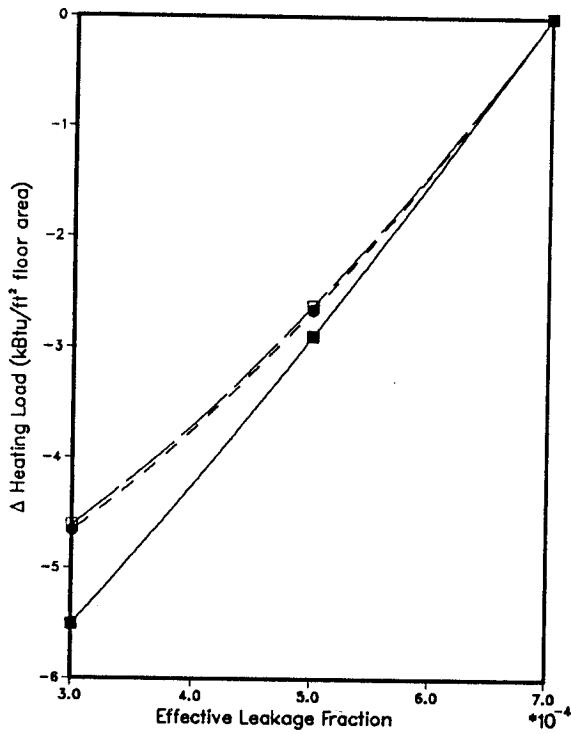
$$\text{Comp. Load (Btu)} = \text{Area} * (U_{\text{wind}} * \text{Slope} * 24 + U_{\text{wind}}^2 * \text{Curve} * 576) \quad [10]$$

Sample regression plots for four cities are shown in Figures 2.20 and 2.21. The Δ and component loads for window conduction per ft² are shown under "Window U-value" on the tables in Section 3.A. The loads for triple-pane windows are interpolated between double-pane and the R-10 multiple-pane windows. These loads are only for conductive losses and do not include the effects of solar gain through windows.

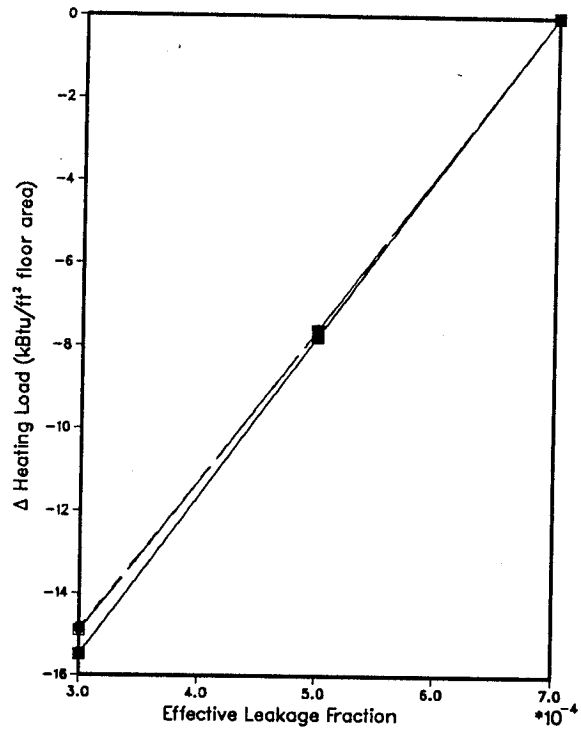
To analyze the impact on building loads due to variations in window solar gain, a set of 52 parametric simulations were designed for the one-story prototype in each base city (Table 2.2). Twelve of these simulations cover shading coefficients of 1.00, 0.67, 0.33, and 0.00 for 8%, 12%, and 20% window areas (of floor area) equally distributed in four cardinal orientations. Forty simulations cover various window configurations ranging from 1% to 14% glazing area in one orientation, and from 8% to 20% total glazing area.

Figure 2.17 Correlation of Δ Infiltration Heating Loads to Effective-leakage-fractions

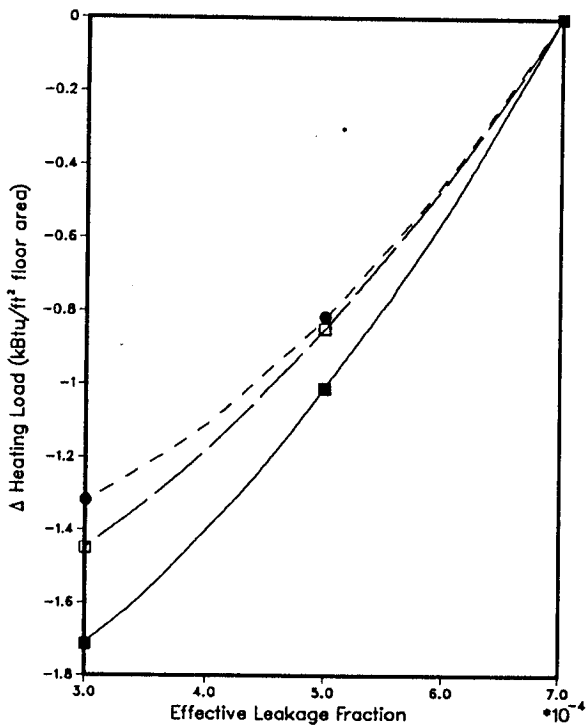
Albuquerque



Minneapolis



Phoenix



Legend

- One Story
- Mid Town
- MApartment

Figure 2.18 Correlation of Δ Infiltration Cooling Loads to Effective-leakage-fractions

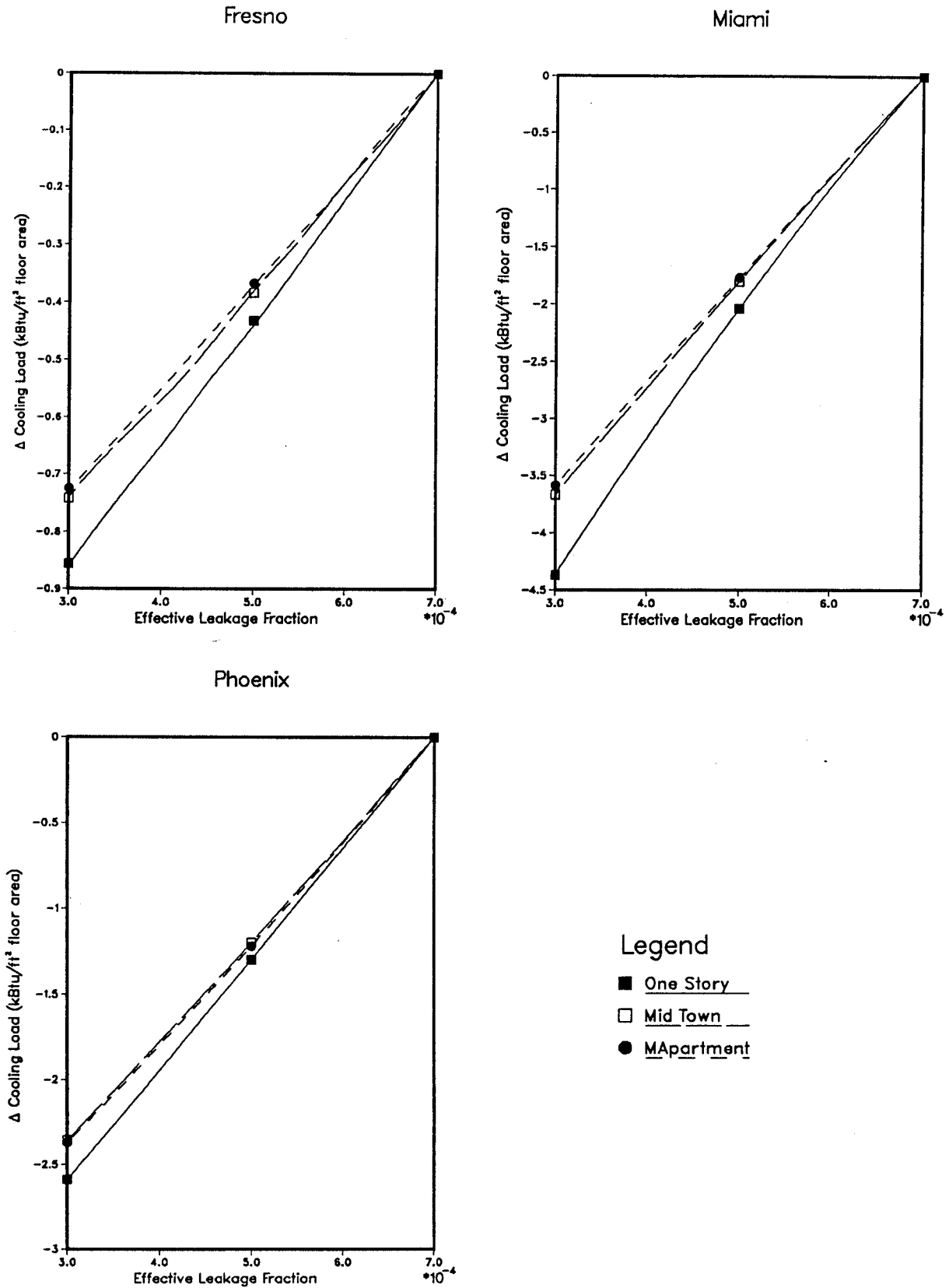


Figure 2.19 Correlation of Average Winter Air-change Rates to Effective Leakage-Fractions

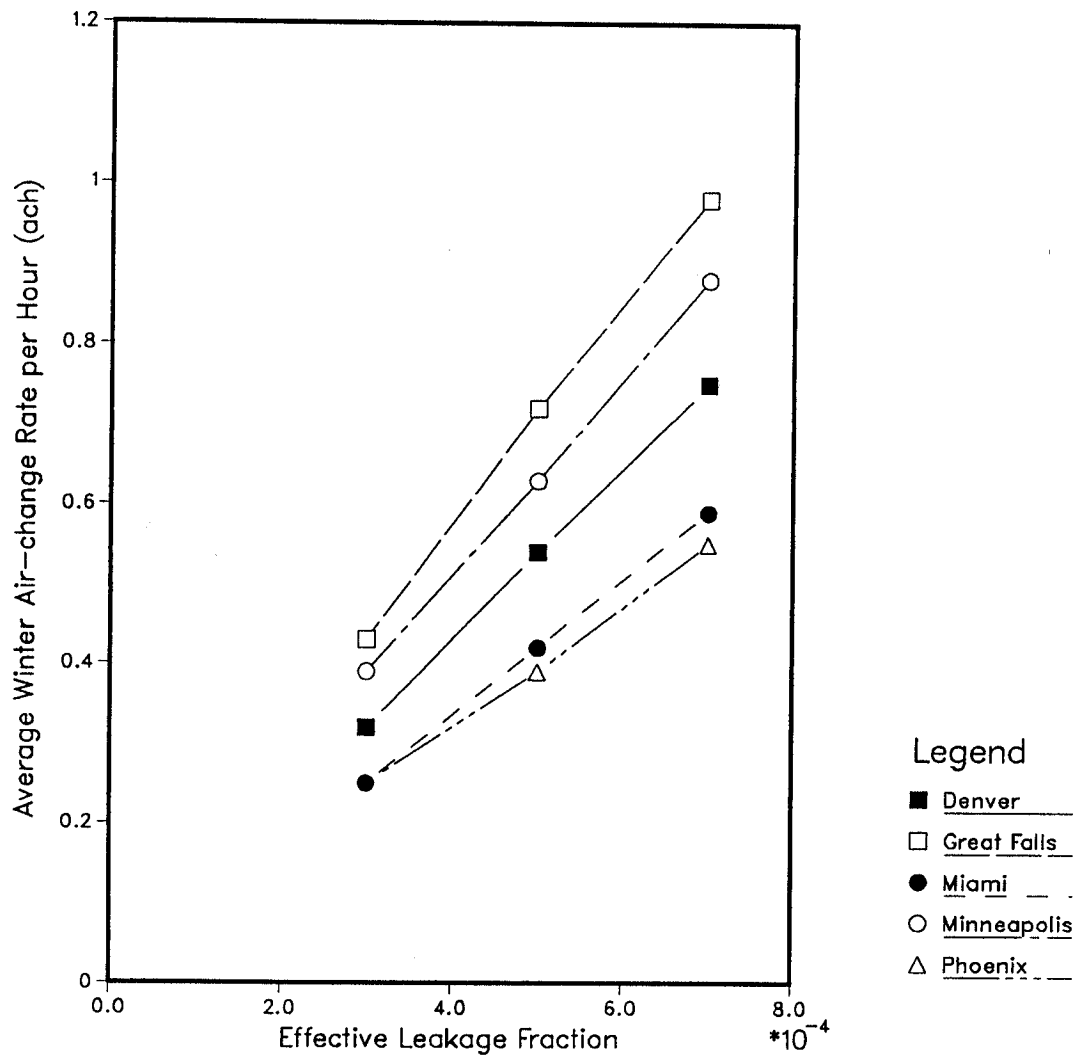


Figure 2.20 Correlation of Δ Window Conduction Heating Loads to Window U-values

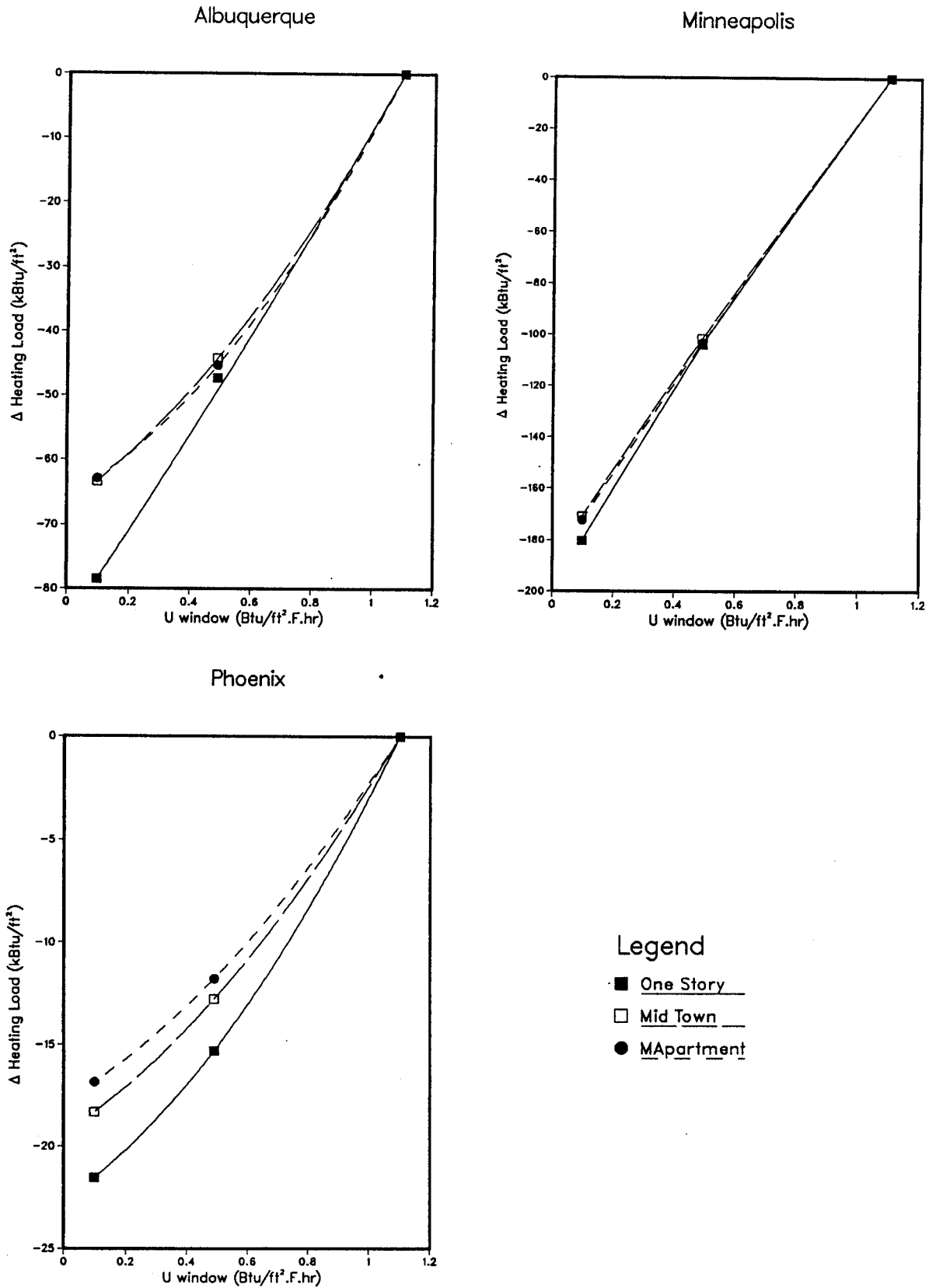


Figure 2.21 Correlation of Δ Window Conduction Cooling Loads to Window U-values

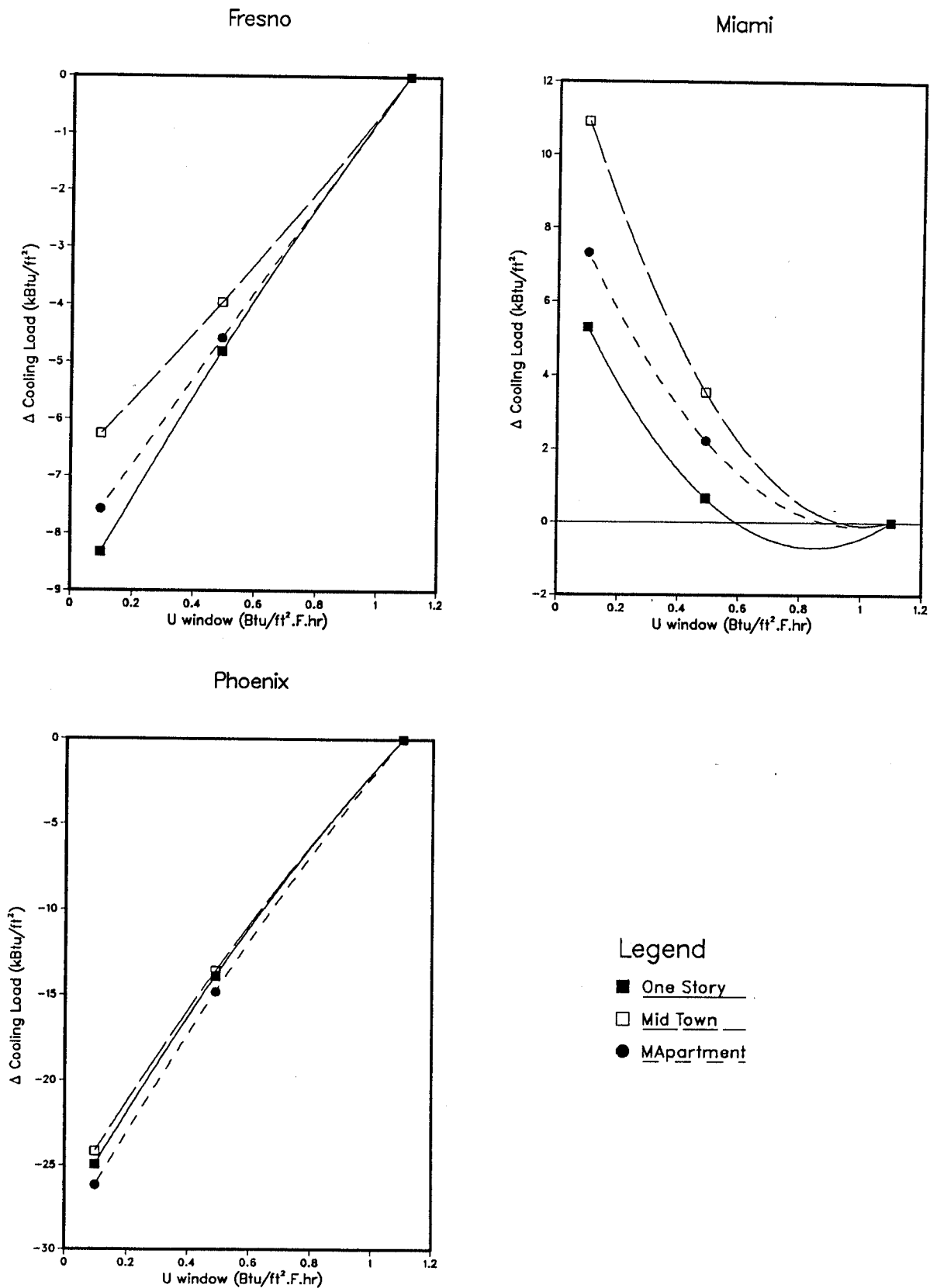


Table 2.2 Parametric Analysis of Window Solar Gain Conditions

(* = short parametric set done for 34 cities)

Run code	Shading Coefficient	Window/Floor Ratio (%)				Total
		North	East	South	West	
Shading coefficient simulations						
1 A north	1.000	2.00	2.00	2.00	2.00	8.00 *
2 A north	1.000	3.00	3.00	3.00	3.00	12.00 *
3 A north	1.000	5.00	5.00	5.00	5.00	20.00 *
1 B north	0.666	2.00	2.00	2.00	2.00	8.00 *
2 B north	0.666	3.00	3.00	3.00	3.00	12.00 *
3 B north	0.666	5.00	5.00	5.00	5.00	20.00
1 C north	0.333	2.00	2.00	2.00	2.00	8.00
2 C north	0.333	3.00	3.00	3.00	3.00	12.00 *
3 C north	0.333	5.00	5.00	5.00	5.00	20.00
1 D north	0.000	2.00	2.00	2.00	2.00	8.00 *
2 D north	0.000	3.00	3.00	3.00	3.00	12.00
3 D north	0.000	5.00	5.00	5.00	5.00	20.00 *
Window orientation simulations						
4 A north	1.000	0.00	2.67	2.67	2.67	8.00
5 A north	1.000	4.00	1.33	1.33	1.33	8.00 *
6 A north	1.000	4.00	0.00	4.00	0.00	8.00
7 A north	1.000	0.00	4.00	4.00	4.00	12.00 *
8 A north	1.000	6.00	2.00	2.00	2.00	12.00 *
9 A north	1.000	6.00	0.00	6.00	0.00	12.00
10 A north	1.000	1.00	6.33	6.33	6.33	20.00
11 A north	1.000	9.00	3.67	3.67	3.67	20.00
12 A north	1.000	9.00	1.00	9.00	1.00	20.00 *
13 A north	1.000	14.00	2.00	2.00	2.00	20.00 *
4 A east	1.000	2.67	2.67	2.67	0.00	8.00
5 A east	1.000	1.33	1.33	1.33	4.00	8.00 *
6 A east	1.000	0.00	4.00	0.00	4.00	8.00
7 A east	1.000	4.00	4.00	4.00	0.00	12.00 *
8 A east	1.000	2.00	2.00	2.00	6.00	12.00 *
9 A east	1.000	0.00	6.00	0.00	6.00	12.00
10 A east	1.000	6.33	6.33	6.33	1.00	20.00
11 A east	1.000	3.67	3.67	3.67	9.00	20.00
12 A east	1.000	1.00	9.00	1.00	9.00	20.00 *
13 A east	1.000	2.00	2.00	2.00	14.00	20.00 *
4 A south	1.000	2.67	2.67	0.00	2.67	8.00
5 A south	1.000	1.33	1.33	4.00	1.33	8.00 *
6 A south	1.000	4.00	0.00	4.00	0.00	8.00
7 A south	1.000	4.00	4.00	0.00	4.00	12.00 *
8 A south	1.000	2.00	2.00	6.00	2.00	12.00 *
9 A south	1.000	6.00	0.00	6.00	0.00	12.00
10 A south	1.000	6.33	6.33	1.00	6.33	20.00
11 A south	1.000	3.67	3.67	9.00	3.67	20.00
12 A south	1.000	9.00	1.00	9.00	1.00	20.00
13 A south	1.000	2.00	2.00	14.00	2.00	20.00 *
4 A west	1.000	2.67	0.00	2.67	2.67	8.00
5 A west	1.000	1.33	4.00	1.33	1.33	8.00 *
6 A west	1.000	0.00	4.00	0.00	4.00	8.00
7 A west	1.000	4.00	0.00	4.00	4.00	12.00 *
8 A west	1.000	2.00	6.00	2.00	2.00	12.00 *
9 A west	1.000	0.00	6.00	0.00	6.00	12.00
10 A west	1.000	6.33	1.00	6.33	6.33	20.00
11 A west	1.000	3.67	9.00	3.67	3.67	20.00
12 A west	1.000	1.00	9.00	1.00	9.00	20.00
13 A west	1.000	2.00	14.00	2.00	2.00	20.00 *

Analysis of the sensitivity results indicated that a quadratic multi-variant regression equation using five independent parameters produced reliable correlations with R^2 's typically above .999 for heating, and .997 for cooling loads, except for locations with insignificant loads. Tables 2.3 and 2.4 show sample regression results for heating loads in Albuquerque and cooling loads in Phoenix. Because of the high reliability of this regression technique, the full set of 52 simulations were done for only 11 cities, and an abbreviated set of 25 done for the remaining 34 cities. *

The regression methodology reduces the DOE-2 test results to five coefficients, four related to the window solar aperture (shading coefficient * area) in each orientation, and one to the total solar gain into the house.

$$A = \sum_{i=1}^4 \alpha_i * (\text{area}_i * \text{shading coefficient}_i) \quad [11]$$

$$\text{Load}_{\text{window solar}} = A * (\beta * A + 1) + \text{Load}_{0 \text{ solar aperture}}$$

The first term (A) is the total solar gain into the house. The second term ($\beta * A + 1$) is the "solar usability" expressed as a linear function of the total solar gain (A) and relative to 1 for a house with zero solar aperture. The linear relationship between usability and solar gain is based on analysis of test simulations that indicate $d\text{load}/d\text{solar aperture}$ of houses with equally distributed windows is roughly linear to the total solar aperture (Figure 2.22).

The "solar usability" term is not needed for estimating cooling loads, since a simple multi-linear regression produces good correlations to the DOE-2 Δ loads for changes in window orientation and shading coefficient (compare Figure 2.23 to Figure 2.24). For heating, however, Δ loads due to increased solar gain varies with the total amount of solar gain entering the house. As the solar gain increases, its usability decreases since increasing amounts are vented or occur on days when the house has no heating load. As a result, a simple multi-linear correlation similar to the one in Figure 2.23 produces significant scatter with a standard error of 0.7MBtu in Albuquerque (Figure 2.25). Adding the "solar usability" term estimated as a linear function of total solar gain improves the regression and reduces the standard error to 0.12MBtu (Figure 2.26).

The window solar gain coefficients are listed in the tables in Section 3.B below the mass wall regression results. The units for the four α are kBtu/ft², while the β

* The 11 cities correspond to the Window Sensitivity Base Cities selected out the 45 for the voluntary guidelines data base (see Section 5.5 of Huang et al. 1987). The cities are: Albuquerque, Atlanta, Chicago, Denver, Lake Charles, Miami, Minneapolis, New York, Phoenix, San Francisco, and Seattle.

Table 2.3 Window Regression Analysis for Denver Heating Loads

Denver CO		Heating Window area (sq.ft.)				Del Load Predicted	
Total	Shad Coef	North	East	South	West	(MBtu)	(MBtu)
8.00%	1.000	30.8	30.8	30.8	30.8	-12.697	-12.574
12.00%	1.000	46.2	46.2	46.2	46.2	-17.690	-17.605
20.00%	1.000	77.0	77.0	77.0	77.0	-25.547	-25.259
8.00%	.666	30.8	30.8	30.8	30.8	-8.837	-8.766
12.00%	.666	46.2	46.2	46.2	46.2	-12.620	-12.563
20.00%	.666	77.0	77.0	77.0	77.0	-19.277	-19.089
8.00%	.333	30.8	30.8	30.8	30.8	-4.587	-4.613
12.00%	.333	46.2	46.2	46.2	46.2	-6.700	-6.734
20.00%	.333	77.0	77.0	77.0	77.0	-10.667	-10.709
8.00%	.000	30.8	30.8	30.8	30.8	-.037	-.105
12.00%	.000	46.2	46.2	46.2	46.2	.000	-.105
20.00%	.000	77.0	77.0	77.0	77.0	-.037	-.105
8.00%	1.000	.0	41.1	41.1	41.1	-14.697	-14.554
8.00%	1.000	61.6	20.5	20.5	20.5	-10.557	-10.481
8.00%	1.000	61.6	.0	61.6	.0	-13.077	-13.375
12.00%	1.000	.0	61.6	61.6	61.6	-20.150	-20.082
12.00%	1.000	92.4	30.8	30.8	30.8	-14.920	-14.875
12.00%	1.000	92.4	.0	92.4	.0	-18.280	-18.620
20.00%	1.000	15.4	97.5	97.5	97.5	-27.657	-27.301
20.00%	1.000	138.6	56.5	56.5	56.5	-22.937	-22.766
20.00%	1.000	138.6	15.4	138.6	15.4	-26.137	-26.125
20.00%	1.000	215.6	30.8	30.8	30.8	-18.987	-19.015
8.00%	1.000	41.1	41.1	.0	41.1	-10.187	-9.908
8.00%	1.000	20.5	20.5	61.6	20.5	-15.007	-15.060
12.00%	1.000	61.6	61.6	.0	61.6	-14.180	-14.108
12.00%	1.000	30.8	30.8	92.4	30.8	-20.630	-20.695
20.00%	1.000	97.5	97.5	15.4	97.5	-21.857	-22.029
20.00%	1.000	56.5	56.5	138.6	56.5	-28.027	-27.766
20.00%	1.000	30.8	30.8	215.6	30.8	-29.707	-29.885
8.00%	1.000	41.1	.0	41.1	41.1	-12.527	-12.625
8.00%	1.000	20.5	61.6	20.5	20.5	-12.667	-12.523
8.00%	1.000	.0	61.6	.0	61.6	-12.027	-11.755
12.00%	1.000	61.6	.0	61.6	61.6	-17.460	-17.670
12.00%	1.000	30.8	92.4	30.8	30.8	-17.500	-17.540
12.00%	1.000	.0	92.4	.0	92.4	-16.430	-16.550
20.00%	1.000	97.5	15.4	97.5	97.5	-25.337	-25.315
20.00%	1.000	56.5	138.6	56.5	56.5	-25.207	-25.202
20.00%	1.000	15.4	138.6	15.4	138.6	-24.017	-24.321
20.00%	1.000	30.8	215.6	30.8	30.8	-24.587	-25.130
8.00%	1.000	41.1	41.1	41.1	.0	-13.057	-13.060
8.00%	1.000	20.5	20.5	20.5	61.6	-12.217	-12.082
12.00%	1.000	61.6	61.6	61.6	.0	-18.190	-18.223
12.00%	1.000	30.8	30.8	30.8	92.4	-16.930	-16.973
20.00%	1.000	97.5	97.5	97.5	15.4	-26.047	-25.790
20.00%	1.000	56.5	56.5	56.5	138.6	-24.767	-24.701
20.00%	1.000	30.8	30.8	30.8	215.6	-23.657	-23.968
Alphas(KBtu/sf)		-50.000	-112.636	-195.523	-98.823	Beta = .00810 Inter = -.10450	
Fsumsq= 1.5273		Ifail= 0		Flag=			
Rsq = .999406		RMsq = .999332		Standard Error (MBtu) = .182212			

Table 2.4 Window Regression Analysis for Phoenix Cooling Loads

Phoenix AZ		Cooling				Del Load	Predicted
Total	Shad Coef	Window area (sq.ft.)					
		North	East	South	West	(MBtu)	(MBtu)
9.00%	1.000	30.8	30.8	30.8	30.8	8.253	8.190
12.00%	1.000	46.2	46.2	46.2	46.2	12.340	12.410
20.00%	1.000	77.0	77.0	77.0	77.0	20.753	21.059
8.00%	.666	30.8	30.8	30.8	30.8	5.393	5.409
12.00%	.666	46.2	46.2	46.2	46.2	8.120	8.181
20.00%	.666	77.0	77.0	77.0	77.0	13.403	13.818
8.00%	.333	30.8	30.8	30.8	30.8	2.683	2.667
12.00%	.333	46.2	46.2	46.2	46.2	3.990	4.034
20.00%	.333	77.0	77.0	77.0	77.0	6.513	6.791
8.00%	.000	30.8	30.8	30.8	30.8	.003	-.044
12.00%	.000	46.2	46.2	46.2	46.2	.000	-.044
20.00%	.000	77.0	77.0	77.0	77.0	.003	-.044
8.00%	1.000	.0	41.1	41.1	41.1	9.403	9.532
8.00%	1.000	61.6	20.5	20.5	20.5	7.083	6.855
8.00%	1.000	61.6	.0	61.6	.0	6.113	6.305
12.00%	1.000	.0	61.6	61.6	61.6	14.130	14.459
12.00%	1.000	92.4	30.8	30.8	30.8	10.670	10.378
12.00%	1.000	92.4	.0	92.4	.0	9.290	9.542
20.00%	1.000	15.4	97.5	97.5	97.5	23.383	23.882
20.00%	1.000	138.6	56.5	56.5	56.5	18.233	18.264
20.00%	1.000	138.6	15.4	138.6	15.4	17.053	17.117
20.00%	1.000	215.6	30.8	30.8	30.8	15.363	14.810
8.00%	1.000	41.1	41.1	.0	41.1	8.523	8.112
8.00%	1.000	20.5	20.5	61.6	20.5	8.003	8.267
8.00%	1.000	61.6	.0	61.6	.0	6.113	6.305
12.00%	1.000	61.6	61.6	.0	61.6	12.710	12.292
12.00%	1.000	30.8	30.8	92.4	30.8	12.070	12.528
12.00%	1.000	92.4	.0	92.4	.0	9.290	9.542
20.00%	1.000	97.5	97.5	15.4	97.5	20.903	20.896
20.00%	1.000	56.5	56.5	138.6	56.5	20.873	21.221
20.00%	1.000	138.6	15.4	138.6	15.4	17.053	17.117
20.00%	1.000	30.8	30.8	215.6	30.8	23.033	21.424
8.00%	1.000	41.1	41.1	41.1	.0	7.443	7.438
8.00%	1.000	20.5	20.5	20.5	61.6	9.023	8.944
8.00%	1.000	.0	61.6	.0	61.6	10.363	10.088
12.00%	1.000	61.6	61.6	61.6	.0	11.190	11.265
12.00%	1.000	30.8	30.8	30.8	92.4	13.570	13.561
12.00%	1.000	.0	92.4	.0	92.4	15.500	15.310
20.00%	1.000	97.5	97.5	97.5	15.4	19.193	19.483
20.00%	1.000	56.5	56.5	56.5	138.6	22.353	22.643
20.00%	1.000	15.4	138.6	15.4	138.6	24.703	25.057
20.00%	1.000	30.8	30.8	30.8	215.6	25.283	24.636
8.00%	1.000	41.1	.0	41.1	41.1	7.623	7.682
8.00%	1.000	20.5	61.6	20.5	20.5	8.873	8.698
8.00%	1.000	.0	61.6	.0	61.6	10.363	10.088
12.00%	1.000	61.6	.0	61.6	61.6	11.490	11.637
12.00%	1.000	30.8	92.4	30.8	30.8	13.300	13.186
12.00%	1.000	.0	92.4	.0	92.4	15.500	15.310
20.00%	1.000	97.5	15.4	97.5	97.5	19.833	19.994
20.00%	1.000	56.5	138.6	56.5	56.5	21.773	22.127
20.00%	1.000	15.4	138.6	15.4	138.6	24.703	25.057
20.00%	1.000	30.8	215.6	30.8	30.8	24.113	23.469
Alphas (KBtu/sf)		34.200	77.679	67.536	83.439	Beta = .00211	Inter = -.04413
Fsumsq = 6.4316		Ifail = 5	Flag = ****				
Rsq = .997369		RMsq = .997083	Standard Error (MBtu) = .351688				

Figure 2.22 $d(\text{Load})/d(\text{Solar Aperture})$ as a Function of Total Solar Aperture in Albuquerque NM

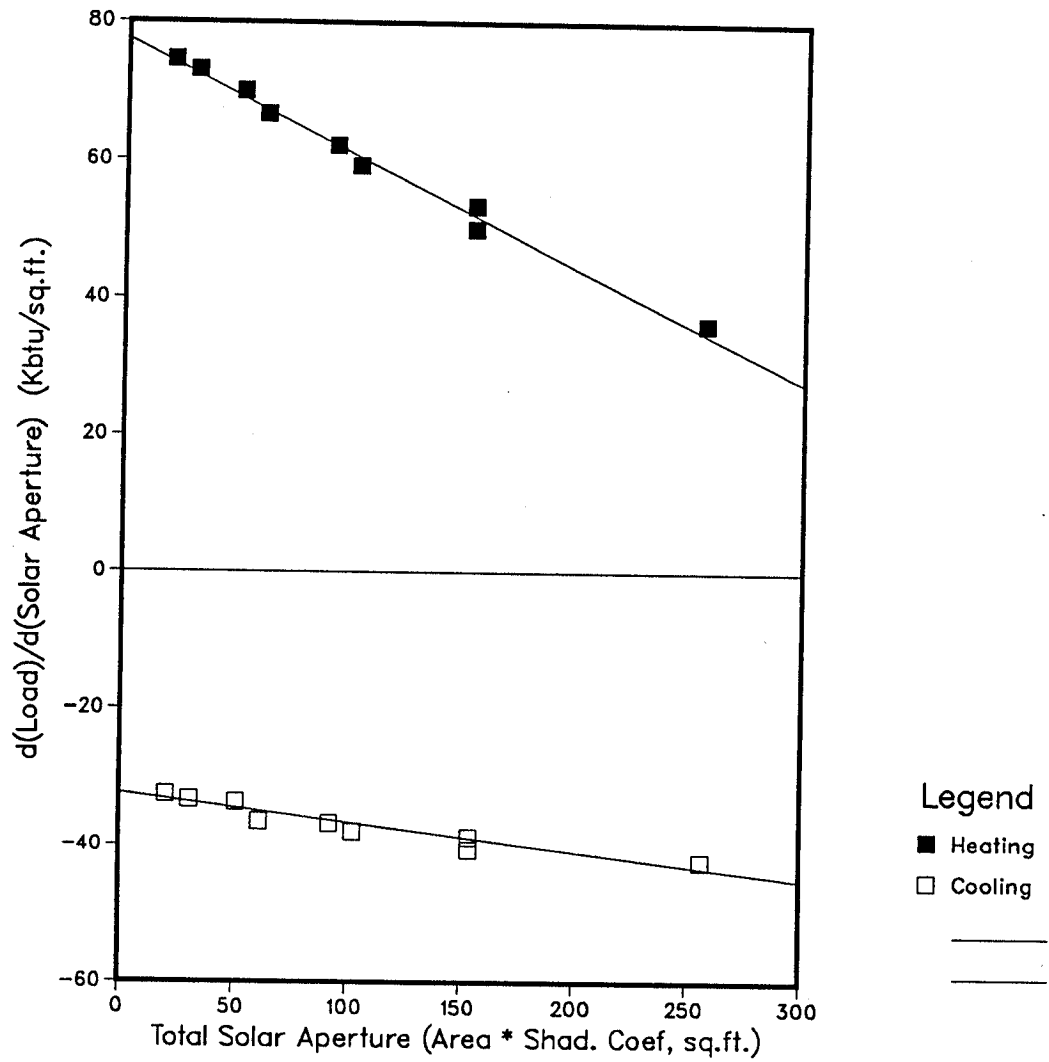


Figure 2.23 Multi-linear Correlation of Δ Cooling Loads to Solar Aperture in Phoenix

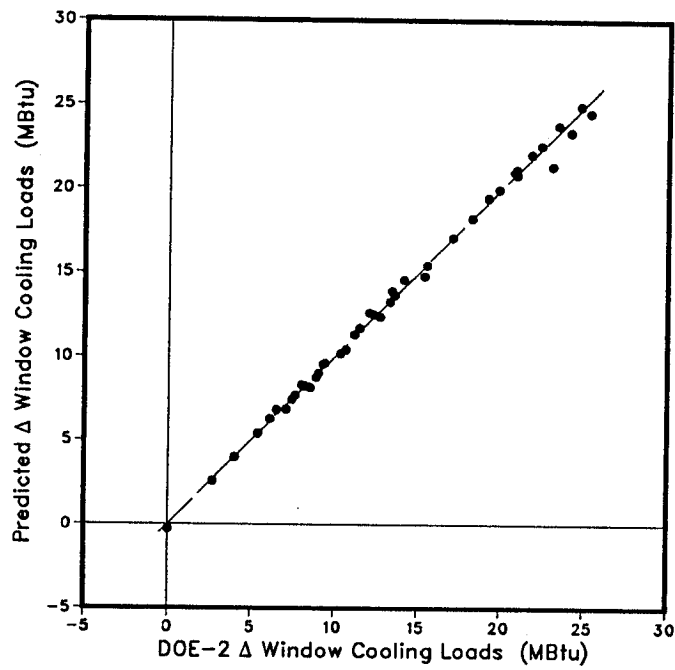


Figure 2.24 Correlation of Δ Cooling Loads to Solar Aperture * Solar Usability in Phoenix

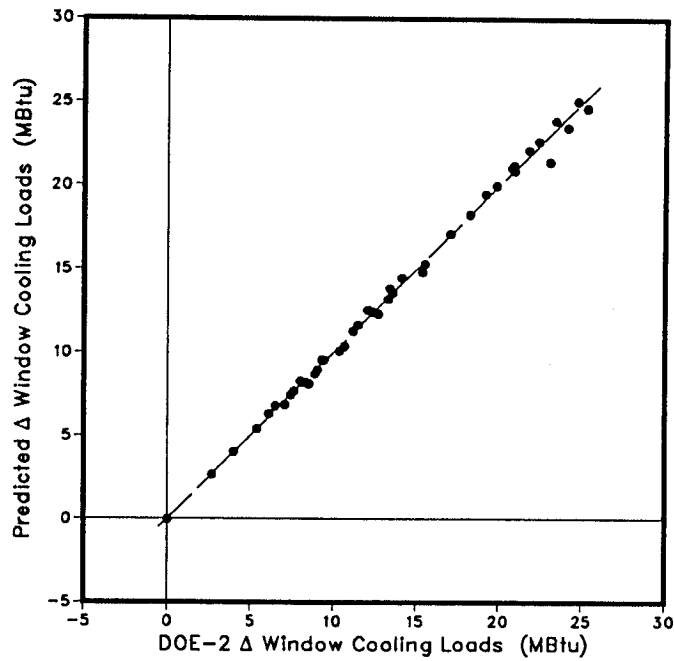


Figure 2.25 Multi-linear Correlation of Δ Heating Loads to Solar Aperture in Albuquerque

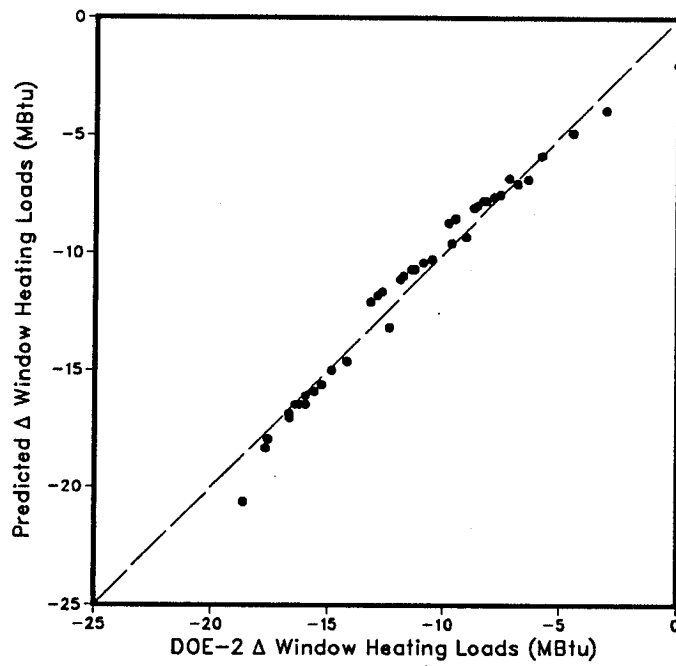
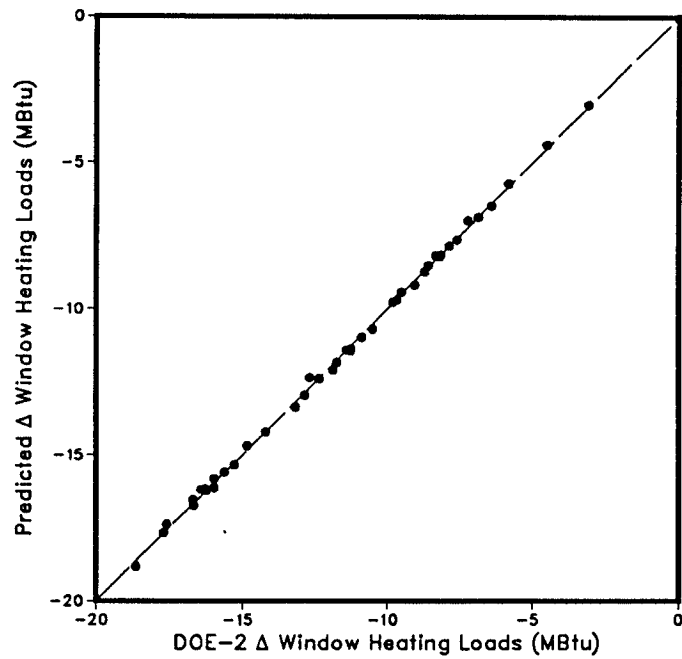


Figure 2.26 Correlation of Δ Heating Loads to Solar Aperture * Solar Usability in Albuquerque



relative "solar usability" term is dimensionless. An intercept from the regression is also shown, but was not used in the data base. The coefficients can be used with Equation 11 to calculate the solar gain component load for different window configurations.

RESULTS

Tables for Insulation and Infiltration Measures

Section 3.A contain tables of insulation and infiltration measures for the three prototype buildings in 45 base locations. For each conservation measure, the tables show the total Δ load for the prototype house in MBtu, and the component load in kBtu normalized by ft^2 for ceiling, wall, window, and floor insulation measures, by perimeter ft. for foundation perimeter insulation measures, and by ft^2 of floor area for infiltration measures. For the foundation measures, the Δ loads are relative to the foundation type with the highest load, generally the crawl space, while the component loads are relative to the regression intercept for the most prevalent foundation type in each location as listed in Table 1.7.

Following the Δ and component loads, the tables give the two regression coefficients. The linear coefficients are listed as "Slope", and the quadratic coefficients as "Curve". As described in Section 2.A, the component loads are assumed to be zero at zero U-value for insulation measures and zero leakage area for infiltration measures. Therefore, the intercepts are always zero except for the foundation measures. For foundations, the intercepts indicate Δ loads between foundation types unrelated to building conductance. These are given relative to the prevalent foundation type and in units of kBtu/ft for slabs and heated basements, and kBtu/ ft^2 for unheated basements and crawl-spaces.

At the bottom are listed the *Base, Typical, and Residual Loads*. The *Base Load* is the total building load for a worst case building with no insulation, 0.007 effective-leakage-fraction, and the foundation type with the highest load, generally crawl space. It is the reference condition from which the Δ loads are calculated. To estimate the total loads for a prototype house in other configurations, subtract the Δ loads for the appropriate conservation levels from the base load. In addition to the Δ loads in this section, the Δ loads for various mass walls and window solar effects in Section 3.B must also be included. For the *Base Load*, the windows are assumed to be single-pane of average orientation with a shading coefficient of 1.00.

The *Typical Load* is the total building load for an house of average thermal integrity in each location. This figure is not used in the data base and included only for reference.

The *Residual Load* is explained in Section 2.A, and corresponds to the difference from the DOE-2 data and the sum of the component loads calculated through the

regression analyses. To estimate the total loads for a particular house configuration using the component loads approach, multiply the component loads by the normalization (i.g., square feet of ceiling, perimeter feet of slab edge, etc.), and then sum the results, including the residual load. Alternatively, the regression coefficients can be used as explained in Section 2.A.

Albuquerque NM WYEC One Story Prototype Siding Series Two			Heating Load			Cooling Load		
Delta Component (MBtu)			Delta Component (KBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Ceiling (/sf)			Ceiling (/sf)		
R-0	.00	22.58	R-0	.00	19.81	R-0	.00	10.22
R-7	-21.01	8.94	R-7	-11.65	9.44	R-7	-9.44	4.09
R-11	-24.37	6.76	R-11	-13.31	7.96	R-11	-10.95	3.11
R-19	-27.38	4.81	R-13	-15.32	6.18	R-19	-12.30	2.23
R-22	-28.52	4.07	R-19	-16.31	5.29	R-22	-12.82	1.89
R-30	-30.05	3.07	R-27	-17.95	3.84	R-30	-13.53	1.44
R-38	-30.97	2.47	R-34	-18.95	2.95	R-38	-13.95	1.16
R-49	-31.77	1.96				R-49	-14.33	.91
R-60	-32.28	1.62				R-60	-14.58	.75
Slope(DD) 4468.29			Slope(DD) 3773.11			Slope(DD) 2089.63		
Curve(DDS) -111.142			Curve(DDS) -16.709			Curve(DDS) -61.701		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)		
R-0	-16.12	39.78	R-0	-8.95	82.97	R-0	-4.68	-2.52
R-5 2ft	-19.37	20.20	R-5 4ft	-14.13	51.76	R-5 2ft	-4.53	-1.74
R-5 4ft	-19.96	16.64	R-5 8ft	-15.20	45.32	R-5 4ft	-4.46	-1.32
R-10 2ft	-20.01	16.34	R-10 4ft	-15.42	43.99	R-10 2ft	-4.51	-1.62
R-10 4ft	-20.81	11.52	R-10 8ft	-17.02	34.35	R-10 4ft	-4.42	-1.08
Intercept	.000		Intercept	9.144		Intercept	.000	
Slope(DD)	4155.71		Slope(DD)	2834.65		Slope(DD)	-446.08	
Curve(DDS)	-.186		Curve(DDS)	-22.466		Curve(DDS)	19.089	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)		
R-0	-8.95	8.94	R-0	.00	14.76	R-0	-2.63	1.05
R-11 flr	-17.49	3.40	R-11 flr	-16.95	3.75	R-11 flr	-1.14	2.01
R-19 flr	-19.79	1.90	R-19 flr	-19.79	1.90	R-19 flr	-.81	2.23
R-30 flr	-21.27	.94	R-30 flr	-21.41	.85	R-30 flr	-.59	2.37
			R-38 flr	-21.78	.61			
			R-49 flr	-22.85	-.08			
Intercept	-1.623		Intercept	-1.775		Intercept	2.731	
Slope(DD)	3479.79		Slope(DD)	3339.94		Slope(DD)	-480.16	
Curve(DDS)	-276.762		Curve(DDS)	-22.660		Curve(DDS)	29.591	
Infiltration (/sf flr) Window U-value			Infiltration (/sf flr) Window U-value			Infiltration (/sf flr) Window U-value		
ELF Ach			ELF Ach			ELF Ach		
.0007(.71)	.00	8.89	1-Pane	.00	85.45	.0007(.53)	.00	.49
.0005(.50)	-4.46	5.99	2-Pane	-9.11	36.15	.0005(.38)	-.24	.33
.0003(.30)	-8.48	3.38	3-Pane	-11.59	22.75	.0003(.23)	-.46	.19
			R-10	-14.50	6.98			
Slope/.001ELF 10.194			Slope(DD) 2943.49			Slope/.001ELF .584		
Curve/.001ELF 3.572			Curve(DDS) 11.105			Curve/.001ELF .162		
Base Load = 100.60 MBtu			Base Load = 36.08 MBtu			Base Load = 31.91 MBtu		
Typical Load = 36.08 MBtu			Typical Load = 12.23 MBtu			Typical Load = 12.23 MBtu		
Residual Load = 2.71 MBtu			Residual Load = -1.02 MBtu			Residual Load = -1.02 MBtu		

Albuquerque NM WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-8.96	R-7	-5.03	R-7	-3.88	R-7	-1.10
R-11	-10.39	R-11	-6.44	R-11	-4.50	R-11	-1.26
R-19	-11.68	R-13	-6.52	R-19	-5.08	R-13	-1.49
R-22	-12.10	R-19	-6.90	R-22	-5.26	R-19	-1.59
R-30	-12.65	R-27	-7.43	R-30	-5.54	R-27	-1.61
R-38	-12.99	R-34	-7.75	R-38	-5.70	R-34	-1.77
R-49	-13.25			R-49	-5.85		
R-60	-13.41			R-60	-5.95		
Slope(DD)	3889.57	Slope(DD)	2715.90	Slope(DD)	2066.42	Slope(DD)	1020.93
Curve(DDS)	21.183	Curve(DDS)	134.966	Curve(DDS)	-45.295	Curve(DDS)	-26.401
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-6.89	R-0	-4.74	R-0	-1.81	R-0	-1.89
R-5	-7.59	R-5	-6.23	R-5	-1.77	R-5	-1.94
R-10	-7.69	R-5	-6.48	R-10	-1.75	R-5	-1.93
R-10	-7.70	R-10	-6.52	R-10	-1.76	R-10	-1.95
R-10	-7.82	R-10	-6.79	R-10	-1.73	R-10	-1.94
Intercept	.000	Intercept	15.486	Intercept	.000	Intercept	.000
Slope(DD)	1680.64	Slope(DD)	1573.11	Slope(DD)	-751.14	Slope(DD)	-44.78
Curve(DDS)	140.817	Curve(DDS)	7.027	Curve(DDS)	37.261	Curve(DDS)	1.977
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-4.74	R-0	.00	R-0	-.89	R-0	.00
R-11	-6.61	R-11	-5.85	R-11	-.40	R-11	.22
R-19	-7.16	R-19	-6.75	R-19	-.29	R-19	.19
R-30	-7.51	R-30	-7.23	R-30	-.22	R-30	.19
Intercept	-.692	Intercept	-.635	Intercept	2.700	Intercept	.19
Slope(DD)	2170.87	Slope(DD)	2482.80	Slope(DD)	-402.69	Slope(DD)	2.993
Curve(DDS)	-187.229	Curve(DDS)	50.227	Curve(DDS)	24.593	Curve(DDS)	135.56
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.69)	6.38	2-Pane	-6.37	.0007(.53)	.19	2-Pane	-.14
.0005(.50)	3.76	3-Pane	-7.64	.0005(.38)	.07	3-Pane	-.55
.0003(.29)	1.77	R-10	-9.13	.0003(.23)	.01	R-10	-.39
Slope/.001ELF	3.500	Slope(DD)	1459.66	Slope/.001ELF	-.167	Slope(DD)	-.97.54
Curve/.001ELF	8.021	Curve(DDS)	40.931	Curve/.001ELF	.625	Curve(DDS)	4.296
Base Load = 45.68 MBtu		Base Load = 20.12 MBtu		Base Load = 20.12 MBtu		Base Load = 20.12 MBtu	
Typical Load = 17.51 MBtu		Typical Load = 11.89 MBtu		Typical Load = 11.89 MBtu		Typical Load = 11.89 MBtu	
Residual Load = 6.49 MBtu		Residual Load = 4.25 MBtu		Residual Load = 4.25 MBtu		Residual Load = 4.25 MBtu	

Albuquerque NM WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.27	R-7	-3.45	R-7	-4.08	R-7	-6.67
R-11	-10.75	R-11	-3.94	R-11	-4.73	R-11	-7.76
R-19	-12.08	R-13	-4.45	R-19	-5.32	R-13	-8.89
R-22	-12.49	R-19	-4.70	R-22	-5.54	R-19	-9.95
R-30	-13.04	R-27	-5.04	R-30	-5.84	R-27	-1.04
R-38	-13.37	R-34	-5.26	R-38	-6.02	R-34	-1.09
R-49	-13.60			R-49	-6.16		
R-60	-13.75			R-60	-6.26		
Slope(DD)	3696.75	Slope(DD)	2568.19	Slope(DD)	2189.94	Slope(DD)	801.10
Curve(DDS)	68.441	Curve(DDS)	169.861	Curve(DDS)	-49.826	Curve(DDS)	-7.420
Slab		Heated Basement		Slab		Heated Basement	
	(/ft)		(/ft)		(/ft)		(/ft)
R-0	-7.59	R-0	-5.89	R-0	-1.26	R-0	-7.75
R-5 2ft	-8.19	R-5 4ft	-7.30	R-5 2ft	-1.24	R-5 4ft	-8.80
R-5 4ft	-8.28	R-5 8ft	-7.53	R-5 4ft	-1.22	R-5 8ft	-9.79
R-10 2ft	-8.29	R-10 4ft	-7.58	R-10 2ft	-1.23	R-10 4ft	-8.81
R-10 4ft	-8.40	R-10 8ft	-7.84	R-10 4ft	-1.20	R-10 8ft	-8.82
Intercept	.000	Intercept	5.186	Intercept	.000	Intercept	9.502
Slope(DD)	2328.29	Slope(DD)	2083.38	Slope(DD)	-996.23	Slope(DD)	116.84
Curve(DDS)	131.368	Curve(DDS)	7.005	Curve(DDS)	57.554	Curve(DDS)	-6.664
Unheated Basement		Crawl		Unheated Basement		Crawl	
	(/sf)		(/sf)		(/sf)		(/sf)
R-0	-5.89	R-0	.00	R-0	-.75	R-0	.00
R-11 flr	-7.46	R-11 flr	-6.33	R-11 flr	-.31	R-11 flr	.24
R-19 flr	-7.96	R-19 flr	-7.31	R-19 flr	-.21	R-19 flr	.23
R-30 flr	-8.28	R-30 flr	-7.85	R-30 flr	-.14	R-30 flr	.22
Intercept	-.884	Intercept	-.934	Intercept	1.942	Intercept	.20
Slope(DD)	1997.97	Slope(DD)	2775.39	Slope(DD)	-387.86	Slope(DD)	2.174
Curve(DDS)	-182.663	Curve(DDS)	41.007	Curve(DDS)	26.304	Curve(DDS)	129.43
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach	(/sf flr)		(/sf)	ELF Ach	(/sf flr)		(/sf)
.0007(.69)	.00	1-Pane	.00	.0007(.53)	.00	1-Pane	.00
.0005(.50)	-3.19	2-Pane	-6.52	.0005(.38)	-.15	2-Pane	-.21
.0003(.29)	-5.59	3-Pane	-7.69	.0003(.23)	-.25	3-Pane	-.24
		R-10	-9.06			R-10	-.28
Slope/.001ELF	3.416	Slope(DD)	1152.98	Slope/.001ELF	-.104	Slope(DD)	29.39
Curve/.001ELF	8.230	Curve(DDS)	50.894	Curve/.001ELF	.625	Curve(DDS)	1.840
Base Load = 43.65 MBtu				Base Load = 17.96 MBtu			
Typical Load = 16.25 MBtu				Typical Load = 10.49 MBtu			
Residual Load = 6.57 MBtu				Residual Load = 2.94 MBtu			

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-17.87	R-7	-10.04	R-7	-7.63	R-7	-1.97
R-11	-20.72	R-11	-11.47	R-11	-8.85	R-11	-2.25
R-19	-23.28	R-13	-13.19	R-19	-9.94	R-13	-2.63
R-22	-24.24	R-19	-14.04	R-22	-10.36	R-19	-2.82
R-30	-25.53	R-27	-15.48	R-30	-10.92	R-27	-3.16
R-38	-26.31	R-34	-16.37	R-38	-11.26	R-34	-3.37
R-49	-26.99			R-49	-11.56		
R-60	-27.43			R-60	-11.76		
Slope(DD)	3778.18	Slope(DD)	3300.40	Slope(DD)	1664.39	Slope(DD)	819.03
Curve(DDS)	-91.553	Curve(DDS)	-21.403	Curve(DDS)	-46.398	Curve(DDS)	-27.136
Slab		Heated Basement		Slab		Heated Basement	
R-0	-10.57	R-0	-7.18	R-0	-5.48	R-0	-2.42
R-5 2ft	-13.63	R-5 4ft	-10.70	R-5 2ft	-5.37	R-5 4ft	-2.76
R-5 4ft	-14.57	R-5 8ft	-11.96	R-5 4ft	-5.25	R-5 8ft	-2.77
R-10 2ft	-14.12	R-10 4ft	-11.59	R-10 2ft	-5.35	R-10 4ft	-2.85
R-10 4ft	-15.33	R-10 8ft	-13.38	R-10 4ft	-5.19	R-10 8ft	-2.88
Intercept	-2.365	Intercept	.000	Intercept	-11.119	Intercept	.000
Slope(DD)	3636.71	Slope(DD)	2227.25	Slope(DD)	-712.21	Slope(DD)	34.24
Curve(DDS)	-16.729	Curve(DDS)	-18.673	Curve(DDS)	31.110	Curve(DDS)	1.060
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-7.18	R-0	.00	R-0	-2.42	R-0	.00
R-11 flr	-14.59	R-11 flr	-14.44	R-11 flr	-.25	R-11 flr	1.20
R-19 flr	-16.46	R-19 flr	-16.72	R-19 flr	.42	R-19 flr	1.40
R-30 flr	-17.67	R-30 flr	-18.02	R-30 flr	.85	R-30 flr	1.66
Intercept	-2.371	Intercept	-1.28	Intercept	3.240	R-38 flr	1.72
Slope(DD)	2787.61	Slope(DD)	-2.602	Slope(DD)	-1045.97	R-49 flr	1.89
Curve(DDS)	-206.014	Curve(DDS)	2600.69	Curve(DDS)	94.145	Intercept	3.310
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach	.0007(.74)	1-Pane	.00	ELF Ach	.0007(.49)	1-Pane	.00
.0005(.54)	-4.00	2-Pane	-8.02	.0005(.35)	-.72	2-Pane	.06
.0003(.32)	-7.72	3-Pane	-10.29	.0003(.21)	-1.54	3-Pane	.20
		R-10	-12.95			R-10	.37
Slope/.001ELF	10.260	Slope(DD)	2760.08	Slope/.001ELF	3.312	Slope(DD)	-269.92
Curve/.001ELF	2.273	Curve(DD)	5.353	Curve/.001ELF	-.812	Curve(DD)	6.492
Base Load =		85.11 MBtu		Base Load =		31.51 MBtu	
Typical Load =		22.04 MBtu		Typical Load =		14.01 MBtu	
Residual Load =		.03 MBtu		Residual Load =		1.27 MBtu	

Atlanta GA WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-7.24	R-7	-4.18	R-7	-2.93	R-7	-.78
R-11	-8.40	R-11	-4.78	R-11	-3.40	R-11	-.87
R-19	-9.44	R-13	-5.42	R-19	-3.82	R-13	-.90
R-22	-9.78	R-19	-5.74	R-22	-3.95	R-19	-.92
R-30	-10.24	R-27	-6.24	R-30	-4.12	R-27	-.94
R-38	-10.51	R-34	-6.54	R-38	-4.23	R-34	-.95
R-49	-10.73			R-49	-4.24		
R-60	-10.87			R-60	-4.25		
Slope(DD)	3226.31	Slope(DD)	2522.10	Slope(DD)	939.79	Slope(DD)	-142.35
Curve(DDS)	5.259	Curve(DDS)	75.596	Curve(DDS)	54.904	Curve(DDS)	93.265
Slab		Heated Basement		Slab		Heated Basement	
R-0	-5.03	R-0	-3.91	R-0	-1.98	R-0	-.75
R-5 2ft	-5.70	R-5 4ft	-4.97	R-5 2ft	-1.93	R-5 4ft	-.81
R-5 4ft	-5.87	R-5 8ft	-5.26	R-5 4ft	-1.88	R-5 8ft	-.79
R-10 2ft	-5.79	R-10 4ft	-5.18	R-10 2ft	-1.91	R-10 4ft	-.81
R-10 4ft	-6.00	R-10 8ft	-5.54	R-10 4ft	-1.85	R-10 8ft	-.77
Intercept	-2.679	Intercept	.000	Intercept	-25.894	Intercept	.000
Slope(DD)	1960.11	Slope(DD)	1525.81	Slope(DD)	-1214.10	Slope(DD)	-299.05
Curve(DDS)	54.873	Curve(DDS)	-3.280	Curve(DDS)	51.068	Curve(DDS)	5.947
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-3.91	R-0	.00	R-0	-.75	R-0	.00
R-11 flr	-5.52	R-11 flr	-5.04	R-11 flr	.36	R-11 flr	.68
R-19 flr	-6.01	R-19 flr	-5.81	R-19 flr	.63	R-19 flr	.82
R-30 flr	-6.32	R-30 flr	-6.23	R-30 flr	.80	R-30 flr	.94
Intercept	-1.584	Intercept	-1.751	Intercept	3.191	R-38 flr	.97
Slope(DD)	1943.81	Slope(DD)	2156.78	Slope(DD)	-1008.19	R-49 flr	1.05
Curve(DDS)	-172.207	Curve(DD)	40.449	Curve(DDS)	69.844	Intercept	3.122
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach	(/sf)	1-Pane	.00	ELF Ach	(/sf flr)	1-Pane	.00
.0007(.75)	.00	2-Pane	-5.60	.0007(.49)	.00	2-Pane	.36
.0005(.55)	-2.89	3-Pane	-6.83	.0005(.35)	-.48	3-Pane	.94
.0003(.34)	-5.32	R-10	-8.27	.0003(.21)	-.96	R-10	1.62
Slope/.001ELF	6.292	Slope(DD)	1588.58	Slope/.001ELF	2.000	Slope(DD)	-1375.63
Curve/.001ELF	4.792	Curve(DDS)	28.505	Curve/.001ELF	.000	Curve(DDS)	31.574
Base Load = 38.46 MBtu				Base Load = 20.78 MBtu			
Typical Load = 8.75 MBtu				Typical Load = 14.70 MBtu			
Residual Load = 2.61 MBtu				Residual Load = 8.79 MBtu			

Atlanta GA WYEC MAPartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-7.07	R-7	-2.81	R-7	-2.80	R-7	-2.48
R-11	-8.20	R-11	-3.21	R-11	-3.25	R-11	-2.55
R-19	-9.22	R-13	-3.62	R-19	-3.65	R-13	-2.61
R-22	-9.53	R-19	-3.83	R-22	-3.70	R-19	-2.64
R-30	-9.96	R-27	-4.13	R-30	-3.76	R-27	-2.66
R-38	-10.22	R-34	-4.31	R-38	-3.80	R-34	-2.68
R-49	-10.41			R-49	-3.83		
R-60	-10.53			R-60	-3.85		
Slope(DD)	2927.88	Slope(DD)	2249.34	Slope(DD)	220.60	Slope(DD)	175.48
Curve(DDS)	36.747	Curve(DDS)	115.689	Curve(DDS)	147.911	Curve(DDS)	47.682
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-5.62	R-0	-4.77	R-0	-1.49	R-0	-.56
R-5 2ft	-6.18	R-5 4ft	-5.77	R-5 2ft	-1.45	R-5 4ft	-.61
R-5 4ft	-6.31	R-5 8ft	-6.00	R-5 4ft	-1.41	R-5 8ft	-.61
R-10 2ft	-6.25	R-10 4ft	-5.95	R-10 2ft	-1.45	R-10 4ft	-.63
R-10 4ft	-6.42	R-10 8ft	-6.24	R-10 4ft	-1.39	R-10 8ft	-.63
Intercept	2.721	Intercept	.000	Intercept	-19.625	Intercept	.000
Slope(DD)	1891.96	Slope(DD)	1447.29	Slope(DD)	-1444.60	Slope(DD)	76.11
Curve(DDS)	76.556	Curve(DDS)	3.330	Curve(DDS)	63.345	Curve(DDS)	.019
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-4.77	R-0	.00	R-0	-.56	R-0	.00
R-11 flr	-6.10	R-11 flr	-5.34	R-11 flr	.45	R-11 flr	.81
R-19 flr	-6.48	R-19 flr	-6.11	R-19 flr	.78	R-19 flr	1.00
R-30 flr	-6.73	R-30 flr	-6.54	R-30 flr	1.00	R-30 flr	1.17
Intercept	-1.085	Intercept	-1.371	Intercept	3.752	Intercept	3.665
Slope(DD)	1512.54	Slope(DD)	2107.09	Slope(DD)	-1362.68	Slope(DD)	-852.21
Curve(DDS)	-128.177	Curve(DDS)	68.784	Curve(DDS)	129.129	Curve(DDS)	68.422
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.0007(.75)	1-Pane	.00	ELF Ach	.0007(.49)	1-Pane	.00
.0005(.55)	-2.88	2-Pane	-5.59	.0005(.35)	-.47	2-Pane	.33
.0003(.34)	-5.23	3-Pane	-6.72	.0003(.21)	-.88	3-Pane	.98
		R-10	-8.04			R-10	1.75
Slope/.001ELF	5.375	Slope(DD)	1313.67	Slope/.001ELF	1.250	Slope(DD)	-1571.39
Curve/.001ELF	5.521	Curve(DDS)	35.061	Curve/.001ELF	.573	Curve(DDS)	37.077
Base Load = 35.89 MBtu		Base Load = 18.91 MBtu		Base Load = 18.91 MBtu		Base Load = 18.91 MBtu	
Typical Load = 7.62 MBtu		Typical Load = 13.73 MBtu		Typical Load = 13.73 MBtu		Typical Load = 13.73 MBtu	
Residual Load = 3.18 MBtu		Residual Load = 8.19 MBtu		Residual Load = 8.19 MBtu		Residual Load = 8.19 MBtu	

Birmingham AL WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-14.83	R-7	-8.12	R-7	-7.53	R-7	-2.53
R-11	-17.19	R-11	-9.28	R-11	-8.73	R-11	-2.89
R-19	-19.32	R-13	-10.73	R-19	-9.81	R-13	-3.40
R-22	-20.14	R-19	-11.45	R-22	-10.22	R-19	-3.65
R-30	-21.23	R-27	-12.67	R-30	-10.78	R-27	-4.02
R-38	-21.89	R-34	-13.42	R-38	-11.11	R-34	-4.25
R-49	-22.47			R-49	-11.41		
R-60	-22.84			R-60	-11.61		
Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)	
3220.21		2856.59		1645.37		955.69	
-88.017		-41.958		-46.202		-21.088	
Slab		Heated Basement		Slab		Heated Basement	
R-0	-9.28	R-0	-6.27	R-0	-7.28	R-0	-3.38
R-5 2ft	-12.08	R-5 4ft	-9.52	R-5 2ft	-7.31	R-5 4ft	-3.93
R-5 4ft	-12.94	R-5 8ft	-10.69	R-5 4ft	-7.22	R-5 8ft	-4.03
R-10 2ft	-12.54	R-10 4ft	-10.34	R-10 2ft	-7.30	R-10 4ft	-4.10
R-10 4ft	-13.65	R-10 8ft	-11.98	R-10 4ft	-7.20	R-10 8ft	-4.24
Intercept	.000	Intercept	1.505	Intercept	.000	Intercept	13.883
Slope(DD)	3307.60	Slope(DD)	2039.55	Slope(DD)	-570.90	Slope(DD)	196.88
Curve(DDS)	-15.395	Curve(DDS)	-16.907	Curve(DDS)	31.949	Curve(DDS)	-4.73
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-6.27	R-0	.00	R-0	-3.38	R-0	.00
R-11 flr	-13.11	R-11 flr	-13.00	R-11 flr	-1.19	R-11 flr	.67
R-19 flr	-14.82	R-19 flr	-15.04	R-19 flr	-.71	R-19 flr	.60
R-30 flr	-15.92	R-30 flr	-16.18	R-30 flr	-.40	R-30 flr	.58
Intercept	-2.004	R-38 flr	-16.44	R-38 flr	-.46	R-38 flr	.58
Slope(DD)	2534.88	R-49 flr	-17.19	R-49 flr	-.95	R-49 flr	.57
Curve(DDS)	-184.528	Intercept	-2.117	Intercept	4.737	Intercept	4.760
Infiltration	(/sf flr)	Slope(DD)	2285.33	Slope(DD)	-684.41	Slope(DD)	160.19
Window U-value	(/sf)	Curve(DDS)	23.262	Curve(DDS)	40.351	Curve(DDS)	-41.751
ELF Ach		Infiltration	(/sf flr)	Infiltration	(/sf flr)	Window U-value	(/sf)
.0007(.69)	.00	ELF Ach		.0007(.41)	.00	1-Pane	.00
.0005(.48)	-3.77	1-Pane	.00	.0005(.29)	-1.09	2-Pane	-.28
.0003(.30)	-7.32	2-Pane	-6.14	.0003(.18)	-2.18	3-Pane	-.28
Slope(DD)	10.097	3-Pane	-7.97			R-10	-.29
Curve/.001ELF	1.786	R-10	-10.13	Slope(DD)	3.539	Slope(DD)	-51.61
			5.43	Curve/.001ELF	.000	Curve(DDS)	4.064

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-6.38	R-7	-3.59	R-7	-2.89	R-7	-1.02
R-11	-7.40	R-11	-4.10	R-11	-3.35	R-11	-1.17
R-13	-8.31	R-13	-4.65	R-13	-3.76	R-13	-1.33
R-19	-8.31	R-19	-4.65	R-19	-3.90	R-19	-1.41
R-22	-8.61	R-22	-5.32	R-22	-4.09	R-22	-1.56
R-30	-9.02	R-30	-5.56	R-30	-4.30	R-30	-1.65
R-38	-9.26	R-38	-5.81	R-38	-4.40	R-38	-1.65
R-49	-9.44	R-49	-6.06	R-49	-4.60	R-49	-1.65
R-60	-9.56	R-60	-6.25	R-60	-4.75	R-60	-1.65
Slope(DD)	2825.01	Slope(DD)	2024.77	Slope(DD)	1366.30	Slope(DD)	749.57
Curve(DDS)	6.912	Curve(DDS)	84.304	Curve(DDS)	-9.528	Curve(DDS)	.293
Slab		Heated Basement		Slab		Heated Basement	
	(/ft)		(/ft)		(/ft)		(/ft)
R-0	-4.46	R-0	-3.51	R-0	-2.79	R-0	-1.22
R-5	-5.06	R-5	-4.47	R-5	-2.80	R-5	-1.35
R-10	-5.20	R-10	-4.70	R-10	-2.77	R-10	-1.37
R-15	-5.14	R-15	-4.65	R-15	-2.80	R-15	-1.40
R-20	-5.29	R-20	-4.92	R-20	-2.73	R-20	-1.42
Intercept	.000	Intercept	2.070	Intercept	.000	Intercept	26.423
Slope(DD)	918.22	Slope(DD)	1025.00	Slope(DD)	-1485.10	Slope(DD)	159.61
Curve(DDS)	91.674	Curve(DDS)	2.868	Curve(DDS)	80.605	Curve(DDS)	.133
Unheated Basement		Crawl		Unheated Basement		Crawl	
	(/sf)		(/sf)		(/sf)		(/sf)
R-0	-3.51	R-0	.00	R-0	-1.22	R-0	.00
R-5	-4.93	R-5	-4.52	R-5	-1.40	R-5	.44
R-10	-5.34	R-10	-5.16	R-10	-1.21	R-10	.44
R-15	-5.60	R-15	-5.46	R-15	-1.08	R-15	.46
Intercept	-1.368	Intercept	-1.243	Intercept	4.661	Intercept	5.018
Slope(DD)	1608.53	Slope(DD)	1537.74	Slope(DD)	-729.77	Slope(DD)	30.99
Curve(DDS)	-136.293	Curve(DDS)	95.247	Curve(DDS)	49.386	Curve(DDS)	-35.198
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach	(/sf)	1-Pane	(/sf)	ELF Ach	(/sf)	1-Pane	(/sf)
.0007(.68)	.00	2-Pane	.00	.0007(.41)	.00	2-Pane	.00
.0005(.49)	-2.70	3-Pane	-4.32	.0005(.29)	-.72	3-Pane	.08
.0003(.28)	-4.79	R-10	-5.18	.0003(.18)	-1.42	R-10	.36
Slope/.001ELF	3.625	Slope(DD)	987.83	Slope/.001ELF	2.750	Slope(DD)	-692.23
Curve/.001ELF	6.354	Curve(DDS)	27.813	Curve/.001ELF	.208	Curve(DDS)	17.146
Base Load = 33.01 MBtu				Base Load = 26.40 MBtu			
Typical Load = 12.84 MBtu				Typical Load = 17.95 MBtu			
Residual Load = 3.87 MBtu				Residual Load = 8.39 MBtu			

Birmingham AL WYEC M Apartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	17.20	R-0	.00	R-0	7.78
R-7	-6.58	R-7	6.23	R-7	-2.92	R-7	2.91
R-11	-7.64	R-11	4.48	R-11	-3.39	R-11	2.13
R-19	-8.58	R-19	2.90	R-19	-3.81	R-19	1.43
R-22	-8.87	R-22	2.42	R-22	-3.94	R-22	1.20
R-30	-9.25	R-30	1.78	R-30	-4.13	R-30	.90
R-38	-9.49	R-38	1.40	R-38	-4.24	R-38	.71
R-49	-9.64	R-49	1.14	R-49	-4.32	R-49	.57
R-60	-9.74	R-60	.98	R-60	-4.38	R-60	.48
Slope(DD)	2544.62	Slope(DD)	1794.88	Slope(DD)	1287.99	Slope(DD)	562.96
Curve(DDS)	60.234	Curve(DDS)	121.914	Curve(DDS)	3.968	Curve(DDS)	26.687
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-4.98	R-0	30.12	R-0	-2.22	R-0	-6.02
R-5 2ft	-5.48	R-5 4ft	13.46	R-5 2ft	-2.24	R-5 4ft	-6.68
R-5 4ft	-5.59	R-5 8ft	9.62	R-5 4ft	-2.20	R-5 8ft	-5.18
R-10 2ft	-5.54	R-10 4ft	11.29	R-10 2ft	-2.24	R-10 4ft	-6.52
R-10 4ft	-5.68	R-10 8ft	6.62	R-10 4ft	-2.19	R-10 8ft	-4.85
Intercept	.000	Intercept	-3.355	Intercept	.000	Intercept	.000
Slope(DD)	1415.84	Slope(DD)	1128.12	Slope(DD)	-1545.17	Slope(DD)	172.67
Curve(DDS)	80.199	Curve(DDS)	6.268	Curve(DDS)	85.123	Curve(DDS)	.062
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-4.26	R-0	2.71	R-0	-1.03	R-0	1.68
R-11 flr	-5.43	R-11 flr	.76	R-11 flr	-.31	R-11 flr	2.88
R-19 flr	-5.78	R-19 flr	.17	R-19 flr	-.12	R-19 flr	3.20
R-30 flr	-6.01	R-30 flr	-.21	R-30 flr	.00	R-30 flr	3.41
Intercept	-1.242	Intercept	-1.296	Intercept	3.955	Intercept	4.306
Slope(DD)	1408.53	Slope(DD)	1661.81	Slope(DD)	-742.03	Slope(DD)	70.80
Curve(DDS)	-124.548	Curve(DDS)	98.167	Curve(DDS)	58.274	Curve(DDS)	-48.292
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.0007(.68)	1-Pane	.00	ELF Ach	.0007(.41)	1-Pane	.00
.0005(.47)	-2.68	2-Pane	-4.43	.0005(.29)	-.69	2-Pane	.02
.0003(.28)	-4.67	3-Pane	-5.22	.0003(.18)	-1.38	3-Pane	.26
		R-10	-6.15			R-10	.54
Slope/.001ELF	2.645	Slope(DD)	782.91	Slope/.001ELF	2.875	Slope(DD)	-590.41
Curve/.001ELF	7.084	Curve(DDS)	34.488	Curve/.001ELF	.000	Curve(DDS)	15.161
Base Load = 31.25 MBtu		Base Load = 24.49 MBtu		Base Load = 24.49 MBtu		Base Load = 24.49 MBtu	
Typical Load = 11.74 MBtu		Typical Load = 16.98 MBtu		Typical Load = 16.98 MBtu		Typical Load = 16.98 MBtu	
Residual Load = 4.26 MBtu		Residual Load = 7.54 MBtu		Residual Load = 7.54 MBtu		Residual Load = 7.54 MBtu	

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	49.78	R-7	26.65	R-7	4.01	R-7	1.16
R-11	45.95	R-11	30.45	R-11	-4.65	R-11	-1.33
R-19	53.29	R-13	35.15	R-19	-5.23	R-13	-1.59
R-22	59.88	R-19	37.48	R-22	-5.45	R-19	-1.72
R-30	62.44	R-27	41.76	R-30	-5.75	R-27	-1.89
R-38	65.86	R-34	44.39	R-38	-6.10	R-34	-2.00
R-49	67.93			R-49	-6.21		
R-60	71.00			R-60	-6.21		
Slope(DD)	10196.38	Slope(DD)	9802.28	Slope(DD)	897.75	Slope(DD)	483.36
Curve(DDS)	-303.700	Curve(DDS)	-198.542	Curve(DDS)	-27.581	Curve(DDS)	-15.200
Slab		Heated Basement		Slab		Heated Basement	
R-0	-30.45	R-0	-16.90	R-0	-4.13	R-0	-3.00
R-5	2ft	R-5	4ft	R-5	2ft	R-5	4ft
R-10	4ft	R-10	8ft	R-10	4ft	R-10	8ft
R-15	8ft	R-15	12ft	R-15	8ft	R-15	12ft
R-20	12ft	R-20	16ft	R-20	12ft	R-20	16ft
R-25	16ft	R-25	20ft	R-25	16ft	R-25	20ft
R-30	20ft	R-30	24ft	R-30	20ft	R-30	24ft
R-35	24ft	R-35	28ft	R-35	24ft	R-35	28ft
R-40	28ft	R-40	32ft	R-40	28ft	R-40	32ft
R-45	32ft	R-45	36ft	R-45	32ft	R-45	36ft
R-50	36ft	R-50	40ft	R-50	36ft	R-50	40ft
R-55	40ft	R-55	44ft	R-55	40ft	R-55	44ft
R-60	44ft	R-60	48ft	R-60	44ft	R-60	48ft
R-65	48ft	R-65	52ft	R-65	48ft	R-65	52ft
R-70	52ft	R-70	56ft	R-70	52ft	R-70	56ft
R-75	56ft	R-75	60ft	R-75	56ft	R-75	60ft
R-80	60ft	R-80	64ft	R-80	60ft	R-80	64ft
R-85	64ft	R-85	68ft	R-85	64ft	R-85	68ft
R-90	68ft	R-90	72ft	R-90	68ft	R-90	72ft
R-95	72ft	R-95	76ft	R-95	72ft	R-95	76ft
R-100	76ft	R-100	80ft	R-100	76ft	R-100	80ft
R-105	80ft	R-105	84ft	R-105	80ft	R-105	84ft
R-110	84ft	R-110	88ft	R-110	84ft	R-110	88ft
R-115	88ft	R-115	92ft	R-115	88ft	R-115	92ft
R-120	92ft	R-120	96ft	R-120	92ft	R-120	96ft
R-125	96ft	R-125	100ft	R-125	96ft	R-125	100ft
R-130	100ft	R-130	104ft	R-130	100ft	R-130	104ft
R-135	104ft	R-135	108ft	R-135	104ft	R-135	108ft
R-140	108ft	R-140	112ft	R-140	108ft	R-140	112ft
R-145	112ft	R-145	116ft	R-145	112ft	R-145	116ft
R-150	116ft	R-150	120ft	R-150	116ft	R-150	120ft
R-155	120ft	R-155	124ft	R-155	120ft	R-155	124ft
R-160	124ft	R-160	128ft	R-160	124ft	R-160	128ft
R-165	128ft	R-165	132ft	R-165	128ft	R-165	132ft
R-170	132ft	R-170	136ft	R-170	132ft	R-170	136ft
R-175	136ft	R-175	140ft	R-175	136ft	R-175	140ft
R-180	140ft	R-180	144ft	R-180	140ft	R-180	144ft
R-185	144ft	R-185	148ft	R-185	144ft	R-185	148ft
R-190	148ft	R-190	152ft	R-190	148ft	R-190	152ft
R-195	152ft	R-195	156ft	R-195	152ft	R-195	156ft
R-200	156ft	R-200	160ft	R-200	156ft	R-200	160ft
R-205	160ft	R-205	164ft	R-205	160ft	R-205	164ft
R-210	164ft	R-210	168ft	R-210	164ft	R-210	168ft
R-215	168ft	R-215	172ft	R-215	168ft	R-215	172ft
R-220	172ft	R-220	176ft	R-220	172ft	R-220	176ft
R-225	176ft	R-225	180ft	R-225	176ft	R-225	180ft
R-230	180ft	R-230	184ft	R-230	180ft	R-230	184ft
R-235	184ft	R-235	188ft	R-235	184ft	R-235	188ft
R-240	188ft	R-240	192ft	R-240	188ft	R-240	192ft
R-245	192ft	R-245	196ft	R-245	192ft	R-245	196ft
R-250	196ft	R-250	200ft	R-250	196ft	R-250	200ft
R-255	200ft	R-255	204ft	R-255	200ft	R-255	204ft
R-260	204ft	R-260	208ft	R-260	204ft	R-260	208ft
R-265	208ft	R-265	212ft	R-265	208ft	R-265	212ft
R-270	212ft	R-270	216ft	R-270	212ft	R-270	216ft
R-275	216ft	R-275	220ft	R-275	216ft	R-275	220ft
R-280	220ft	R-280	224ft	R-280	220ft	R-280	224ft
R-285	224ft	R-285	228ft	R-285	224ft	R-285	228ft
R-290	228ft	R-290	232ft	R-290	228ft	R-290	232ft
R-295	232ft	R-295	236ft	R-295	232ft	R-295	236ft
R-300	236ft	R-300	240ft	R-300	236ft	R-300	240ft
R-305	240ft	R-305	244ft	R-305	240ft	R-305	244ft
R-310	244ft	R-310	248ft	R-310	244ft	R-310	248ft
R-315	248ft	R-315	252ft	R-315	248ft	R-315	252ft
R-320	252ft	R-320	256ft	R-320	252ft	R-320	256ft
R-325	256ft	R-325	260ft	R-325	256ft	R-325	260ft
R-330	260ft	R-330	264ft	R-330	260ft	R-330	264ft
R-335	264ft	R-335	268ft	R-335	264ft	R-335	268ft
R-340	268ft	R-340	272ft	R-340	268ft	R-340	272ft
R-345	272ft	R-345	276ft	R-345	272ft	R-345	276ft
R-350	276ft	R-350	280ft	R-350	276ft	R-350	280ft
R-355	280ft	R-355	284ft	R-355	280ft	R-355	284ft
R-360	284ft	R-360	288ft	R-360	284ft	R-360	288ft
R-365	288ft	R-365	292ft	R-365	288ft	R-365	292ft
R-370	292ft	R-370	296ft	R-370	292ft	R-370	296ft
R-375	296ft	R-375	300ft	R-375	296ft	R-375	300ft
R-380	300ft	R-380	304ft	R-380	300ft	R-380	304ft
R-385	304ft	R-385	308ft	R-385	304ft	R-385	308ft
R-390	308ft	R-390	312ft	R-390	308ft	R-390	312ft
R-395	312ft	R-395	316ft	R-395	312ft	R-395	316ft
R-400	316ft	R-400	320ft	R-400	316ft	R-400	320ft
R-405	320ft	R-405	324ft	R-405	320ft	R-405	324ft
R-410	324ft	R-410	328ft	R-410	324ft	R-410	328ft
R-415	328ft	R-415	332ft	R-415	328ft	R-415	332ft
R-420	332ft	R-420	336ft	R-420	332ft	R-420	336ft
R-425	336ft	R-425	340ft	R-425	336ft	R-425	340ft
R-430	340ft	R-430	344ft	R-430	340ft	R-430	344ft
R-435	344ft	R-435	348ft	R-435	344ft	R-435	348ft
R-440	348ft	R-440	352ft	R-440	348ft	R-440	352ft
R-445	352ft	R-445	356ft	R-445	352ft	R-445	356ft
R-450	356ft	R-450	360ft	R-450	356ft	R-450	360ft
R-455	360ft	R-455	364ft	R-455	360ft	R-455	364ft
R-460	364ft	R-460	368ft	R-460	364ft	R-460	368ft
R-465	368ft	R-465	372ft	R-465	368ft	R-465	372ft
R-470	372ft	R-470	376ft	R-470	372ft	R-470	376ft
R-475	376ft	R-475	380ft	R-475	376ft	R-475	380ft
R-480	380ft	R-480	384ft	R-480	380ft	R-480	384ft
R-485	384ft	R-485	388ft	R-485	384ft	R-485	388ft
R-490	388ft	R-490	392ft	R-490	388ft	R-490	392ft
R-495	392ft	R-495	396ft	R-495	392ft	R-495	396ft
R-500	396ft	R-500	400ft	R-500	396ft	R-500	400ft
R-505	400ft	R-505	404ft	R-505	400ft	R-505	404ft
R-510	404ft	R-510	408ft	R-510	404ft	R-510	408ft
R-515	408ft	R-515	412ft	R-515	408ft	R-515	412ft
R-520	412ft	R-520	416ft	R-520	412ft	R-520	416ft
R-525	416ft	R-525	420ft	R-525	416ft	R-525	420ft
R-530	420ft	R-530	424ft	R-530	420ft	R-530	424ft
R-535	424ft	R-535	428ft	R-535	424ft	R-535	428ft
R-540	428ft	R-540	432ft	R-540	428ft	R-540	432ft
R-545	432ft	R-545	436ft	R-545	432ft	R-545	436ft
R-550	436ft	R-550	440ft	R-550	436ft	R-550	440ft
R-555	440ft	R-555	444ft	R-555	440ft	R-555	444ft
R-560	444ft	R-560	448ft	R-560	444ft	R-560	448ft
R-565	448ft	R-565	452ft	R-565	448ft	R-565	452ft
R-570	452ft	R-570	456ft	R-570	452ft	R-570	456ft
R-575	456ft	R-575	460ft	R-575	456ft	R-575	460ft
R-580	460ft	R-580	464ft	R-580	460ft	R-580	464ft
R-585	464ft	R-585	468ft	R-585	464ft	R-585	468ft
R-590	468ft	R-590	472ft	R-590	468ft	R-590	472ft
R-595	472ft	R-595	476ft	R-595	472ft	R-595	476ft
R-600	476ft	R-600	480ft	R-600	476ft	R-600	480ft
R-605	480ft	R-605	484ft	R-605	480ft	R-605	484ft
R-610	484ft	R-610	488ft	R-610	484ft	R-610	488ft
R-615	488ft	R-615	492ft	R-615	488ft	R-615	492ft
R-620	492ft	R-620	496ft	R-620	492ft	R-620	496ft
R-625	496ft	R-625	500ft	R-625	496ft	R-625	500ft
R-630	500ft	R-630	504ft	R-630	500ft	R-630	504ft
R-635	504ft	R-635	508ft	R-635	504ft	R-635	508ft
R-640	508ft	R-640	512ft	R-640	508ft	R-640	512ft
R-645	512ft	R-645	516ft	R-645	512ft	R-645	516ft
R-650	516ft	R-650	520ft	R-650	516ft	R-650	520ft
R-655	520ft	R-655	524ft	R-655	520ft	R-655	524ft
R-660	524ft	R-660					

Bismarck ND	WYEC	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (KBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Wall (/sf)	
R-0	.00	52.17	.00	46.60	R-0	.00	4.37	R-0	.00
R-7	-19.04	20.44	-11.48	22.50	R-7	-1.57	1.75	R-7	-50
R-11	-22.08	15.37	-13.12	19.07	R-11	-1.82	1.33	R-11	-57
R-19	-24.81	10.82	-15.08	14.96	R-19	-2.05	.95	R-13	-69
R-22	-25.81	9.15	-16.05	12.92	R-22	-2.14	.81	R-19	-75
R-30	-27.15	6.92	-17.77	9.30	R-30	-2.25	.62	R-27	-84
R-38	-27.96	5.57	-18.83	7.08	R-38	-2.32	.50	R-34	-90
R-49	-28.67	4.40			R-49	-2.39	.39		
R-60	-29.12	3.64			R-60	-2.43	.32		
Slope(DD)	10013.88		Slope(DD)	9194.23	Slope(DD)	890.41		Slope(DD)	599.93
Curve(DDS)	-204.826		Curve(DDS)	-98.550	Curve(DDS)	-25.945		Curve(DDS)	-30.424
						Delta Component (KBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Wall (/sf)	
R-0	-14.87	74.13	-10.31	188.13	R-0	-1.59	-11.18	R-0	-1.07
R-5 2ft	-16.77	26.63	-13.16	116.88	R-5 2ft	-1.51	-9.18	R-5 4ft	-1.14
R-5 4ft	-17.32	12.88	-14.02	95.38	R-5 4ft	-1.47	-8.18	R-5 8ft	-1.13
R-10 2ft	-17.12	17.88	-13.84	99.88	R-10 2ft	-1.49	-8.68	R-10 4ft	-1.16
R-10 4ft	-17.87	-87	-15.09	68.63	R-10 4ft	-1.43	-7.18	R-10 8ft	-1.15
Intercept	-39.816		Intercept	.000	Intercept	-3.572		Intercept	.000
Slope(DD)	12186.66		Slope(DD)	7159.45	Slope(DD)	-1243.39		Slope(DD)	-38.59
Curve(DDS)	-170.286		Curve(DDS)	-59.881	Curve(DDS)	50.216		Curve(DDS)	2.186
						Delta Component (KBtu)		Delta Component (KBtu)	
						Unheated Basement (/sf)		Unheated Basement (/sf)	
R-0	-10.31	12.54	.00	29.73	R-0	-1.07	.12	R-0	.00
R-11 flr	-15.95	3.14	-15.54	3.83	R-11 flr	-.44	1.17	R-11 flr	.30
R-19 flr	-17.93	-15	-18.24	-.67	R-19 flr	-.25	1.50	R-19 flr	.33
R-30 flr	-19.20	-2.27	-19.94	-3.51	R-30 flr	-.12	1.70	R-30 flr	.37
			-20.33	-4.16				R-38 flr	.38
			-21.45	-6.03				R-49 flr	.41
Intercept	-8.185		Intercept	-10.348	Intercept	2.276		Intercept	2.628
Slope(DD)	8141.35		Slope(DD)	8838.60	Slope(DD)	-781.34		Slope(DD)	-138.67
Curve(DDS)	-799.405		Curve(DDS)	-199.638	Curve(DDS)	70.437		Curve(DDS)	-.464
						Delta Component (KBtu)		Delta Component (KBtu)	
						Infiltration (/sf flr)		Infiltration (/sf flr)	
ELF Ach	.00	30.06	.00	213.11	ELF Ach	.00	.51	1-Pane	.00
.0007(.89)	.00	21.07	-16.58	97.97	.0007(.89)	-.15	.39	2-Pane	-.09
.0005(.85)	-10.78	21.07	-21.74	62.13	.0005(.49)	-.32	.24	3-Pane	-.09
.0003(.40)	-21.18	12.41	-27.81	19.99	.0003(.29)			R-10	-.09
Slope(DD)	40.167		Slope(DD)	8538.58	Slope(DD)	.875		Slope(DD)	-25.05
Curve/.001ELF	3.958		Curve(DDS)	-17.660	Curve/.001ELF	-.208		Curve(DDS)	1.775
						Base Load =		Base Load =	
						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	
						128.76 MBtu		9.87 MBtu	
						44.23 MBtu		5.42 MBtu	
						3.51 MBtu		1.68 MBtu	

Heating Load

Delta Component (MBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	50.86	R-0	.00	46.97
R-7	-18.63	19.81	R-7	-7.83	22.26
R-11	-21.60	14.85	R-11	-8.95	18.74
R-19	-24.28	10.40	R-13	-10.25	14.65
R-22	-25.24	8.79	R-19	-10.89	12.62
R-30	-26.54	6.63	R-27	-12.01	9.07
R-38	-27.32	5.32	R-34	-12.70	6.89
R-49	-27.99	4.22			
R-60	-28.42	3.50			
Slope(DD) 9590.92			Slope(DD) 8891.27		
Curve(DDS) -170.816			Curve(DDS) -29.383		
Slab (/ft)			Heated Basement (/ft)		
R-0	-16.10	96.21	R-0	-12.41	219.37
R-5 2ft	-17.61	45.87	R-5 4ft	-14.98	133.54
R-5 4ft	-18.06	31.04	R-5 8ft	-15.72	108.87
R-10 2ft	-17.89	36.71	R-10 4ft	-15.58	113.71
R-10 4ft	-18.51	16.04	R-10 8ft	-16.65	77.87
Intercept	-27.017		Intercept	.000	
Slope(DD)	13593.62		Slope(DD)	8071.34	
Curve(DDS)	-221.731		Curve(DDS)	-62.726	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-12.41	10.97	R-0	.00	31.64
R-11 flr	-16.91	3.47	R-11 flr	-15.80	5.32
R-19 flr	-18.64	.57	R-19 flr	-18.53	.77
R-30 flr	-19.76	-1.29	R-30 flr	-20.26	-2.12
			R-38 flr	-20.66	-2.78
			R-49 flr	-21.80	-4.68
Intercept	-6.548		Intercept	-9.054	
Slope(DD)	7275.23		Slope(DD)	8981.55	
Curve(DDS)	-752.608		Curve(DDS)	-199.906	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	214.12
.0007(.89)	.00	29.73	2-Pane	-16.82	97.32
.0005(.65)	-10.78	20.74	3-Pane	-21.96	61.65
.0003(.40)	-21.09	12.15	R-10	-27.99	19.71
Slope/.001ELF	39.041		Slope(DD)	8407.35	
Curve/.001ELF	4.896		Curve(DDS)	-11.238	

Base Load = 121.82 MBtu
 Typical Load = 41.03 MBtu
 Residual Load = 3.77 MBtu

Cooling Load

Delta Component (MBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	4.33	R-0	.00	2.14
R-7	-1.57	1.72	R-7	.00	1.13
R-11	-1.82	1.30	R-11	-.37	.98
R-19	-2.05	.93	R-13	-.44	.75
R-22	-2.13	.79	R-19	-.47	.64
R-30	-2.24	.60	R-27	-.52	.48
R-38	-2.31	.48	R-34	-.55	.39
R-49	-2.37	.38			
R-60	-2.42	.31			
Slope(DD) 863.84			Slope(DD) 493.41		
Curve(DDS) -22.395			Curve(DDS) -17.864		
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.14	-6.63	R-0	-.92	.87
R-5 2ft	-1.09	-4.97	R-5 4ft	-.97	.63
R-5 4ft	-1.06	-3.80	R-5 8ft	-.97	.63
R-10 2ft	-1.08	-4.47	R-10 4ft	-.98	.97
R-10 4ft	-1.04	-3.13	R-10 8ft	-.97	.63
Intercept	.195		Intercept	.000	
Slope(DD)	-1129.15		Slope(DD)	-94.77	
Curve(DDS)	46.225		Curve(DDS)	3.003	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.92	.04	R-0	.00	1.58
R-11 flr	-.45	.82	R-11 flr	.28	2.04
R-19 flr	-.30	1.08	R-19 flr	.29	2.06
R-30 flr	-.20	1.25	R-30 flr	.32	2.11
			R-38 flr	.33	2.13
			R-49 flr	.35	2.16
Intercept	1.723		Intercept	2.177	
Slope(DD)	-647.56		Slope(DD)	-78.23	
Curve(DDS)	62.424		Curve(DDS)	-7.546	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	.08
.0007(.68)	.00	.44	2-Pane	-.09	.58
.0005(.49)	-.16	.31	3-Pane	-.07	.40
.0003(.29)	-.32	.18	R-10	-.04	.19
Slope/.001ELF	.562		Slope(DD)	-90.87	
Curve/.001ELF	.104		Curve(DDS)	3.562	

Base Load = 8.43 MBtu
 Typical Load = 4.42 MBtu
 Residual Load = 1.05 MBtu

Heating Load

Cooling Load

Delta Component (MBtu)			Delta Component (KBtu)			Delta Component (KBtu)			Delta Component (KBtu)		
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-12.59	R-7	-7.53	R-7	-7.53	R-7	-2.40	R-7	-2.40	R-7	-1.86
R-11	-14.60	R-11	-8.60	R-11	-8.60	R-11	-2.79	R-11	-2.79	R-11	-1.62
R-19	-16.41	R-13	-9.84	R-13	-9.84	R-19	-3.13	R-13	-3.13	R-13	-1.07
R-22	-17.05	R-19	-10.46	R-19	-10.46	R-22	-3.27	R-19	-3.27	R-19	-1.16
R-30	-17.90	R-27	-11.48	R-27	-11.48	R-30	-3.46	R-27	-3.46	R-27	-1.28
R-38	-18.41	R-34	-12.10	R-34	-12.10	R-38	-3.57	R-34	-3.57	R-34	-1.36
R-49	-18.84					R-49	-3.67		-3.67		
R-60	-19.12					R-60	-3.74		-3.74		
Slope(DD)	6233.86	Slope(DD)	5389.99	Slope(DD)	1449.07	Slope(DD)	1449.07	Slope(DD)	817.95	Slope(DD)	817.95
Curve(DDS)	-79.941	Curve(DDS)	21.901	Curve(DDS)	-52.284	Curve(DDS)	-52.284	Curve(DDS)	-31.359	Curve(DDS)	-31.359
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-8.85	R-0	-6.19	R-0	-1.64	R-0	-1.64	R-0	-1.00	R-0	-1.00
R-5	-10.10	R-5	-8.10	R-5	-1.58	R-5	-1.58	R-5	-1.09	R-5	-1.09
R-10	-10.42	R-10	-8.53	R-10	-1.55	R-10	-1.55	R-10	-1.11	R-10	-1.11
R-15	-10.74	R-15	-8.96	R-15	-1.52	R-15	-1.52	R-15	-1.10	R-15	-1.10
R-20	-11.06	R-20	-9.38	R-20	-1.50	R-20	-1.50	R-20	-1.08	R-20	-1.08
R-25	-11.38	R-25	-9.80	R-25	-1.48	R-25	-1.48	R-25	-1.06	R-25	-1.06
R-30	-11.70	R-30	-10.22	R-30	-1.46	R-30	-1.46	R-30	-1.04	R-30	-1.04
R-35	-12.02	R-35	-10.64	R-35	-1.44	R-35	-1.44	R-35	-1.02	R-35	-1.02
R-40	-12.34	R-40	-11.06	R-40	-1.42	R-40	-1.42	R-40	-1.00	R-40	-1.00
R-45	-12.66	R-45	-11.48	R-45	-1.40	R-45	-1.40	R-45	-.98	R-45	-.98
R-50	-12.98	R-50	-11.90	R-50	-1.38	R-50	-1.38	R-50	-.96	R-50	-.96
R-55	-13.30	R-55	-12.32	R-55	-1.36	R-55	-1.36	R-55	-.94	R-55	-.94
R-60	-13.62	R-60	-12.74	R-60	-1.34	R-60	-1.34	R-60	-.92	R-60	-.92
R-65	-13.94	R-65	-13.16	R-65	-1.32	R-65	-1.32	R-65	-.90	R-65	-.90
R-70	-14.26	R-70	-13.58	R-70	-1.30	R-70	-1.30	R-70	-.88	R-70	-.88
R-75	-14.58	R-75	-14.00	R-75	-1.28	R-75	-1.28	R-75	-.86	R-75	-.86
R-80	-14.90	R-80	-14.42	R-80	-1.26	R-80	-1.26	R-80	-.84	R-80	-.84
R-85	-15.22	R-85	-14.84	R-85	-1.24	R-85	-1.24	R-85	-.82	R-85	-.82
R-90	-15.54	R-90	-15.26	R-90	-1.22	R-90	-1.22	R-90	-.80	R-90	-.80
R-95	-15.86	R-95	-15.68	R-95	-1.20	R-95	-1.20	R-95	-.78	R-95	-.78
R-100	-16.18	R-100	-16.10	R-100	-1.18	R-100	-1.18	R-100	-.76	R-100	-.76
R-105	-16.50	R-105	-16.52	R-105	-1.16	R-105	-1.16	R-105	-.74	R-105	-.74
R-110	-16.82	R-110	-16.94	R-110	-1.14	R-110	-1.14	R-110	-.72	R-110	-.72
R-115	-17.14	R-115	-17.36	R-115	-1.12	R-115	-1.12	R-115	-.70	R-115	-.70
R-120	-17.46	R-120	-17.78	R-120	-1.10	R-120	-1.10	R-120	-.68	R-120	-.68
R-125	-17.78	R-125	-18.20	R-125	-1.08	R-125	-1.08	R-125	-.66	R-125	-.66
R-130	-18.10	R-130	-18.62	R-130	-1.06	R-130	-1.06	R-130	-.64	R-130	-.64
R-135	-18.42	R-135	-19.04	R-135	-1.04	R-135	-1.04	R-135	-.62	R-135	-.62
R-140	-18.74	R-140	-19.46	R-140	-1.02	R-140	-1.02	R-140	-.60	R-140	-.60
R-145	-19.06	R-145	-19.88	R-145	-.98	R-145	-.98	R-145	-.58	R-145	-.58
R-150	-19.38	R-150	-20.30	R-150	-.96	R-150	-.96	R-150	-.56	R-150	-.56
R-155	-19.70	R-155	-20.72	R-155	-.94	R-155	-.94	R-155	-.54	R-155	-.54
R-160	-20.02	R-160	-21.14	R-160	-.92	R-160	-.92	R-160	-.52	R-160	-.52
R-165	-20.34	R-165	-21.56	R-165	-.90	R-165	-.90	R-165	-.50	R-165	-.50
R-170	-20.66	R-170	-21.98	R-170	-.88	R-170	-.88	R-170	-.48	R-170	-.48
R-175	-20.98	R-175	-22.40	R-175	-.86	R-175	-.86	R-175	-.46	R-175	-.46
R-180	-21.30	R-180	-22.82	R-180	-.84	R-180	-.84	R-180	-.44	R-180	-.44
R-185	-21.62	R-185	-23.24	R-185	-.82	R-185	-.82	R-185	-.42	R-185	-.42
R-190	-21.94	R-190	-23.66	R-190	-.80	R-190	-.80	R-190	-.40	R-190	-.40
R-195	-22.26	R-195	-24.08	R-195	-.78	R-195	-.78	R-195	-.38	R-195	-.38
R-200	-22.58	R-200	-24.50	R-200	-.76	R-200	-.76	R-200	-.36	R-200	-.36
R-205	-22.90	R-205	-24.92	R-205	-.74	R-205	-.74	R-205	-.34	R-205	-.34
R-210	-23.22	R-210	-25.34	R-210	-.72	R-210	-.72	R-210	-.32	R-210	-.32
R-215	-23.54	R-215	-25.76	R-215	-.70	R-215	-.70	R-215	-.30	R-215	-.30
R-220	-23.86	R-220	-26.18	R-220	-.68	R-220	-.68	R-220	-.28	R-220	-.28
R-225	-24.18	R-225	-26.60	R-225	-.66	R-225	-.66	R-225	-.26	R-225	-.26
R-230	-24.50	R-230	-27.02	R-230	-.64	R-230	-.64	R-230	-.24	R-230	-.24
R-235	-24.82	R-235	-27.44	R-235	-.62	R-235	-.62	R-235	-.22	R-235	-.22
R-240	-25.14	R-240	-27.86	R-240	-.60	R-240	-.60	R-240	-.20	R-240	-.20
R-245	-25.46	R-245	-28.28	R-245	-.58	R-245	-.58	R-245	-.18	R-245	-.18
R-250	-25.78	R-250	-28.70	R-250	-.56	R-250	-.56	R-250	-.16	R-250	-.16
R-255	-26.10	R-255	-29.12	R-255	-.54	R-255	-.54	R-255	-.14	R-255	-.14
R-260	-26.42	R-260	-29.54	R-260	-.52	R-260	-.52	R-260	-.12	R-260	-.12
R-265	-26.74	R-265	-29.96	R-265	-.50	R-265	-.50	R-265	-.10	R-265	-.10
R-270	-27.06	R-270	-30.38	R-270	-.48	R-270	-.48	R-270	-.08	R-270	-.08
R-275	-27.38	R-275	-30.80	R-275	-.46	R-275	-.46	R-275	-.06	R-275	-.06
R-280	-27.70	R-280	-31.22	R-280	-.44	R-280	-.44	R-280	-.04	R-280	-.04
R-285	-28.02	R-285	-31.64	R-285	-.42	R-285	-.42	R-285	-.02	R-285	-.02
R-290	-28.34	R-290	-32.06	R-290	-.40	R-290	-.40	R-290	.00	R-290	.00
R-295	-28.66	R-295	-32.48	R-295	-.38	R-295	-.38	R-295	.02	R-295	.02
R-300	-28.98	R-300	-32.90	R-300	-.36	R-300	-.36	R-300	.04	R-300	.04
R-305	-29.30	R-305	-33.32	R-305	-.34	R-305	-.34	R-305	.06	R-305	.06
R-310	-29.62	R-310	-33.74	R-310	-.32	R-310	-.32	R-310	.08	R-310	.08
R-315	-29.94	R-315	-34.16	R-315	-.30	R-315	-.30	R-315	.10	R-315	.10
R-320	-30.26	R-320	-34.58	R-320	-.28	R-320	-.28	R-320	.12	R-320	.12
R-325	-30.58	R-325	-35.00	R-325	-.26	R-325	-.26	R-325	.14	R-325	.14
R-330	-30.90	R-330	-35.42	R-330	-.24	R-330	-.24	R-330	.16	R-330	.16
R-335	-31.22	R-335	-35.84	R-335	-.22	R-335	-.22	R-335	.18	R-335	.18
R-340	-31.54	R-340	-36.26	R-340	-.20	R-340	-.20	R-340	.20	R-340	.20
R-345	-31.86	R-345	-36.68	R-345	-.18	R-345	-.18	R-345	.22	R-345	.22
R-350	-32.18	R-350	-37.10	R-350	-.16	R-350	-.16	R-350	.24	R-350	.24
R-355	-32.50	R-355	-37.52	R-355	-.14	R-355	-.14	R-355	.26	R-355	.26
R-360	-32.82	R-360	-37.94	R-360	-.12	R-360	-.12	R-360	.28	R-360	.28
R-365	-33.14	R-365	-38.36	R-365	-.10	R-365	-.10	R-365	.30	R-365	.30
R-370	-33.46	R-370	-38.78	R-370	-.08	R-370	-.08	R-370	.32	R-370	.32
R-375	-33.78	R-375	-39.20	R-375	-.06	R-375	-.06	R-375	.34	R-375	.34
R-380	-34.10	R-380	-39.62	R-380	-.04	R-380	-.04	R-380	.36	R-380	.36
R-385	-34.42	R-385	-40.04	R-385	-.02	R-385	-.02	R-385	.38	R-385	.38
R-390	-34.74	R-390	-40.46	R-390	.00	R-390	.00	R-390	.40	R-390	.40
R-395	-35.06	R-395	-40.88	R-395	.02	R-395	.02	R-395	.42	R-395	.42
R-400	-35.38	R-400	-41.30	R-400	.04	R-400	.04	R-400	.44	R-400	.44
R-405	-35.70	R-405	-41.72	R-405	.06	R-405	.06	R-405	.46	R-405	.46
R-410	-36.02	R-410	-42.14	R-410	.08	R-410	.08	R-410	.48	R-410	.48
R-415	-36.34	R-415	-42.56	R-415	.10	R-415	.10	R-415	.50	R-415	.50
R-420	-36.66	R-420	-42.98	R-420	.12	R-420	.12	R-420	.52	R-420	.52
R-425	-36.98	R-425	-43.40	R-425	.14	R-425	.14	R-425	.54	R-425	.54
R-430	-37.30	R-430	-43.82	R-430	.16	R-430	.16				

Boise ID	WYEC	MApartment Prototype Siding		Series Two		Cooling Load	
		Heating Load					
		Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)
		Ceiling		Wall		Wall	
		R-0	.00	R-0	.00	R-0	.00
		R-7	12.31	R-7	5.12	R-7	1.74
		R-11	12.60	R-11	13.58	R-11	1.53
		R-19	9.33	R-19	5.85	R-19	1.20
		R-22	14.27	R-22	11.28	R-22	1.04
		R-30	16.04	R-30	8.71	R-30	.77
		R-38	16.64	R-38	7.44	R-38	.60
		R-49	17.46	R-49	7.06	R-49	.85
		R-60	17.95	R-60	5.35	R-60	.52
		R-60	18.33	R-60	4.07	R-60	.63
		R-60	18.58	R-60	3.75	R-60	.60
		Slope(DD)	5802.16	Slope(DD)	5154.17	Slope(DD)	786.42
		Curve(DDS)	-36.494	Curve(DDS)	68.930	Curve(DDS)	-33.407
		Slab	(/ft)	Heated Basement	(/ft)	Heated Basement	(/ft)
		R-0	-9.85	R-0	-7.75	R-0	-91
		R-5	70.86	R-5	141.03	R-5	2.06
		R-10	10.87	R-10	82.20	R-10	.39
		R-15	11.14	R-15	9.51	R-15	.56
		R-20	28.03	R-20	66.53	R-20	.11
		R-25	31.20	R-25	69.20	R-25	.06
		R-30	11.05	R-30	47.03	R-30	.00
		R-35	11.41	R-35	0.00	R-35	.00
		R-40	18.86	R-40	487.16	R-40	-10.65
		R-45	5.720	R-45	-32.365	R-45	1.588
		R-50	7922.12	R-50		R-50	
		R-55	-92.347	R-55		R-55	
		Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)
		R-0	-7.75	R-0	.00	R-0	.00
		R-5	7.05	R-5	19.97	R-5	1.61
		R-10	10.81	R-10	3.48	R-10	1.93
		R-15	2.28	R-15	-9.89	R-15	1.91
		R-20	11.66	R-20	-11.53	R-20	1.88
		R-25	.54	R-25	-12.50	R-25	1.87
		R-30	-12.32	R-30	-1.24	R-30	1.85
		R-35	-5.57	R-35	-2.30	R-35	1.788
		R-40	-3.698	R-40	-4.823	R-40	143.43
		R-45	4311.44	R-45	5034.51	R-45	-34.699
		R-50	-431.970	R-50	-38.951	R-50	
		Intercept		Intercept		Intercept	
		Slope(DD)	-3.698	Slope(DD)	-4.823	Slope(DD)	
		Curve(DDS)	4311.44	Curve(DDS)	5034.51	Curve(DDS)	
		Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf)
		ELF Ach		ELF Ach		ELF Ach	
		.0007(.77)	.00	.0007(.56)	.00	.0007(.56)	.00
		.0005(.58)	13.60	.0005(.40)	.40	.0005(.40)	.40
		.0003(.35)	9.02	.0003(.24)	.24	.0003(.24)	.24
			4.99		.15		.15
		Slope/.001ELF	14.542	Slope(DD)	4057.82	Slope(DD)	458
		Curve/.001ELF	6.979	Curve(DDS)	21.324	Curve(DDS)	.156
		Base Load =	68.43 MBtu	Base Load =	11.51 MBtu	Base Load =	11.51 MBtu
		Typical Load =	18.14 MBtu	Typical Load =	5.88 MBtu	Typical Load =	5.88 MBtu
		Residual Load =	5.04 MBtu	Residual Load =	.65 MBtu	Residual Load =	.65 MBtu

Heating Load

Ceiling	Delta Component (MBtu)	(/sf)
R-0	.00	33.45
R-7	-30.95	13.35
R-11	-35.89	10.14
R-19	-40.33	7.26
R-22	-42.04	6.15
R-30	-44.32	4.67
R-38	-45.70	3.77
R-49	-46.94	2.96
R-60	-47.74	2.45

Slope(DD)	6780.42
Curve(DDS)	-192.163

Slab	Heated Basement	(/ft)
R-0	-21.09	52.69
R-5 2ft	-26.30	21.30
R-5 4ft	-27.86	11.90
R-10 2ft	-27.28	15.40
R-10 4ft	-29.46	2.27
Intercept	-25.216	
Slope(DD)	8397.27	
Curve(DDS)	-148.008	

Unheated Basement	(/sf)
R-0	-13.23
R-11 flr	-29.16
R-19 flr	-33.62
R-30 flr	-36.48
Intercept	-9.319
Slope(DD)	6802.93
Curve(DDS)	-562.190

Infiltration	(/sf flr)
ELF Ach	.00
.0007(.91)	22.31
.0005(.67)	-9.93
.0003(.40)	-19.77

Slope/.001ELF	31.363
Curve/.001ELF	.731

Base Load = 175.80 MBtu
Typical Load = 60.30 MBtu
Residual Load = 7.14 MBtu

Cooling Load

Ceiling	Delta Component (MBtu)	(/sf)
R-0	.00	3.16
R-7	-2.77	1.36
R-11	-3.21	1.07
R-19	-3.61	.81
R-22	-3.80	.69
R-30	-4.06	.53
R-38	-4.21	.43
R-49	-4.34	.34
R-60	-4.43	.28

Slope(DD)	783.17
Curve(DDS)	-42.224

Slab	Heated Basement	(/ft)
R-0	-3.62	-2.83
R-5 2ft	-3.47	-1.73
R-5 4ft	-3.38	-1.19
R-10 2ft	-3.44	-1.55
R-10 4ft	-3.31	-1.77
Intercept	1.005	
Slope(DD)	-587.52	
Curve(DDS)	23.623	

Unheated Basement	(/sf)
R-0	-2.49
R-11 flr	-.64
R-19 flr	-.15
R-30 flr	.16
Intercept	2.711
Slope(DD)	-731.97
Curve(DDS)	56.737

Infiltration	(/sf flr)
ELF Ach	.00
.0007(.73)	.70
.0005(.52)	-.31
.0003(.31)	-.62

Slope/.001ELF	1.006
Curve/.001ELF	.000

Base Load = 12.82 MBtu
Typical Load = 4.09 MBtu
Residual Load = -2.66 MBtu

Wall	Delta Component (MBtu)	(/sf)
R-0	.00	1.66
R-7	-.85	.90
R-11	-.97	.79
R-13	-1.16	.63
R-19	-1.25	.54
R-27	-1.41	.40
R-34	-1.51	.31

Slope(DD)	412.87
Curve(DDS)	-19.532

Heated Basement	(/ft)
R-0	-2.49
R-5 4ft	-2.85
R-5 8ft	-2.89
R-10 4ft	-2.96
R-10 8ft	-3.01
Intercept	.000
Slope(DD)	91.26
Curve(DDS)	.280

Crawl	(/sf)
R-0	.00
R-11 flr	.70
R-19 flr	.77
R-30 flr	.80
R-38 flr	.81
R-49 flr	.83
Intercept	2.631
Slope(DD)	-44.47
Curve(DDS)	-12.808

Window U-value	(/sf)
1-Pane	.00
2-Pane	-.11
3-Pane	-.17
R-10	-.23

Slope(DD)	85.67
Curve(DDS)	-1.179

Boston MA	WYEC	Mid Town	Prototype Siding	Series Two	Cooling Load			
					Heating Load		Delta Component	
					Delta Component (KBtu)		Delta Component (KBtu)	
					Ceiling (/sf)		Wall (/sf)	
R-0	.00	34.92	.00	31.27	R-0	.00	R-0	.00
R-7	-12.82	13.56	-7.85	14.79	R-7	-1.08	R-7	1.36
R-11	-14.86	10.15	-8.97	12.44	R-11	-1.25	R-11	1.22
R-13	-16.70	7.08	-10.26	9.73	R-19	-1.41	R-13	.58
R-22	-17.36	5.98	-10.90	8.39	R-22	-1.47	R-19	.42
R-30	-18.25	4.51	-12.03	6.02	R-30	-1.55	R-19	.35
R-38	-18.78	3.62	-12.72	4.57	R-38	-1.60	R-27	.27
R-49	-19.23	2.87			R-49	-1.65	R-34	.22
R-60	-19.52	2.38			R-60	-1.68		
					Slope(DD)	635.74	Slope(DD)	271.65
					Curve(DDS)	-21.177	Curve(DDS)	-3.607
					Slab (/ft)		Heated Basement (/ft)	
R-0	-10.26	54.33	-7.54	122.33	R-0	-1.36	R-0	-92
R-5 2ft	-11.56	21.83	-9.43	75.08	R-5 2ft	-1.31	R-5 4ft	2.55
R-5 4ft	-11.92	12.83	-9.98	61.33	R-5 4ft	-1.27	R-5 8ft	.80
R-10 2ft	-11.79	16.08	-9.87	64.08	R-10 2ft	-1.30	R-10 4ft	.80
R-10 4ft	-12.29	3.58	-10.68	43.83	R-10 4ft	-1.24	R-10 8ft	.30
					Intercept	-2.009	Intercept	.000
					Slope(DD)	4374.96	Slope(DD)	14.35
					Curve(DDS)	-33.606	Curve(DDS)	1.189
					Unheated Basement (/sf)		Crawl (/sf)	
R-0	-7.54	8.16	.00	20.72	R-0	-.92	R-0	.00
R-11 flr	-11.42	1.69	-11.12	2.19	R-11 flr	-.18	R-11 flr	1.70
R-19 flr	-12.72	-4.48	-12.94	-.84	R-19 flr	.02	R-19 flr	.38
R-30 flr	-13.56	-1.88	-14.05	-2.69	R-30 flr	.15	R-30 flr	.50
R-38 flr			-14.30	-3.11	R-38 flr		R-38 flr	.55
R-49 flr			-15.03	-4.33	R-49 flr		R-49 flr	.58
					Intercept	-7.126	Intercept	2.69
					Slope(DD)	5659.00	Slope(DD)	2.906
					Curve(DDS)	-44.511	Curve(DDS)	-382.72
					Infiltration (/sf flr)		Window U-value (/sf)	
					ELF Ach		Window U-value	
					.0007(.93)	.00	1-Pane	.00
					.0005(.68)	-7.56	2-Pane	.01
					.0003(.42)	-14.67	3-Pane	.09
					Slope/.001ELF	25.875	R-10	.18
					Curve/.001ELF	4.688	Slope(DD)	-196.34
					Base Load =	85.28 MBtu	Curve(DDS)	5.021
					Typical Load =	26.77 MBtu		
					Residual Load =	1.58 MBtu		

Heating Load

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	-12.60	R-7	R-7	-1.06	R-7
R-11	-14.62	R-11	R-11	-1.23	R-11
R-19	-16.42	R-13	R-19	-1.39	R-13
R-22	-17.06	R-19	R-22	-1.43	R-19
R-30	-17.90	R-27	R-30	-1.50	R-27
R-38	-18.41	R-34	R-38	-1.54	R-34
R-49	-18.84		R-49	-1.57	
R-60	-19.11		R-60	-1.59	
Slope(DD)	6163.12	Slope(DD)	Slope(DD)	460.65	Slope(DD)
Curve(DDS)	-69.124	Curve(DDS)	Curve(DDS)	2.590	Curve(DDS)
Slab	(/ft)	Heated Basement	Slab	(/ft)	Heated Basement
R-0	-11.31	R-0	R-0	-1.04	R-0
R-5	-12.33	R-5	R-5	-1.04	R-5
R-10	-12.63	R-10	R-10	-1.04	R-10
R-15	-12.91	R-15	R-15	-1.04	R-15
R-20	-13.19	R-20	R-20	-1.04	R-20
R-25	-13.47	R-25	R-25	-1.04	R-25
R-30	-13.75	R-30	R-30	-1.04	R-30
R-35	-14.03	R-35	R-35	-1.04	R-35
R-40	-14.31	R-40	R-40	-1.04	R-40
R-45	-14.59	R-45	R-45	-1.04	R-45
R-50	-14.87	R-50	R-50	-1.04	R-50
R-55	-15.15	R-55	R-55	-1.04	R-55
R-60	-15.43	R-60	R-60	-1.04	R-60
R-65	-15.71	R-65	R-65	-1.04	R-65
R-70	-15.99	R-70	R-70	-1.04	R-70
R-75	-16.27	R-75	R-75	-1.04	R-75
R-80	-16.55	R-80	R-80	-1.04	R-80
R-85	-16.83	R-85	R-85	-1.04	R-85
R-90	-17.11	R-90	R-90	-1.04	R-90
R-95	-17.39	R-95	R-95	-1.04	R-95
R-100	-17.67	R-100	R-100	-1.04	R-100
R-105	-17.95	R-105	R-105	-1.04	R-105
R-110	-18.23	R-110	R-110	-1.04	R-110
R-115	-18.51	R-115	R-115	-1.04	R-115
R-120	-18.79	R-120	R-120	-1.04	R-120
R-125	-19.07	R-125	R-125	-1.04	R-125
R-130	-19.35	R-130	R-130	-1.04	R-130
R-135	-19.63	R-135	R-135	-1.04	R-135
R-140	-19.91	R-140	R-140	-1.04	R-140
R-145	-20.19	R-145	R-145	-1.04	R-145
R-150	-20.47	R-150	R-150	-1.04	R-150
R-155	-20.75	R-155	R-155	-1.04	R-155
R-160	-21.03	R-160	R-160	-1.04	R-160
R-165	-21.31	R-165	R-165	-1.04	R-165
R-170	-21.59	R-170	R-170	-1.04	R-170
R-175	-21.87	R-175	R-175	-1.04	R-175
R-180	-22.15	R-180	R-180	-1.04	R-180
R-185	-22.43	R-185	R-185	-1.04	R-185
R-190	-22.71	R-190	R-190	-1.04	R-190
R-195	-22.99	R-195	R-195	-1.04	R-195
R-200	-23.27	R-200	R-200	-1.04	R-200
R-205	-23.55	R-205	R-205	-1.04	R-205
R-210	-23.83	R-210	R-210	-1.04	R-210
R-215	-24.11	R-215	R-215	-1.04	R-215
R-220	-24.39	R-220	R-220	-1.04	R-220
R-225	-24.67	R-225	R-225	-1.04	R-225
R-230	-24.95	R-230	R-230	-1.04	R-230
R-235	-25.23	R-235	R-235	-1.04	R-235
R-240	-25.51	R-240	R-240	-1.04	R-240
R-245	-25.79	R-245	R-245	-1.04	R-245
R-250	-26.07	R-250	R-250	-1.04	R-250
R-255	-26.35	R-255	R-255	-1.04	R-255
R-260	-26.63	R-260	R-260	-1.04	R-260
R-265	-26.91	R-265	R-265	-1.04	R-265
R-270	-27.19	R-270	R-270	-1.04	R-270
R-275	-27.47	R-275	R-275	-1.04	R-275
R-280	-27.75	R-280	R-280	-1.04	R-280
R-285	-28.03	R-285	R-285	-1.04	R-285
R-290	-28.31	R-290	R-290	-1.04	R-290
R-295	-28.59	R-295	R-295	-1.04	R-295
R-300	-28.87	R-300	R-300	-1.04	R-300
R-305	-29.15	R-305	R-305	-1.04	R-305
R-310	-29.43	R-310	R-310	-1.04	R-310
R-315	-29.71	R-315	R-315	-1.04	R-315
R-320	-29.99	R-320	R-320	-1.04	R-320
R-325	-30.27	R-325	R-325	-1.04	R-325
R-330	-30.55	R-330	R-330	-1.04	R-330
R-335	-30.83	R-335	R-335	-1.04	R-335
R-340	-31.11	R-340	R-340	-1.04	R-340
R-345	-31.39	R-345	R-345	-1.04	R-345
R-350	-31.67	R-350	R-350	-1.04	R-350
R-355	-31.95	R-355	R-355	-1.04	R-355
R-360	-32.23	R-360	R-360	-1.04	R-360
R-365	-32.51	R-365	R-365	-1.04	R-365
R-370	-32.79	R-370	R-370	-1.04	R-370
R-375	-33.07	R-375	R-375	-1.04	R-375
R-380	-33.35	R-380	R-380	-1.04	R-380
R-385	-33.63	R-385	R-385	-1.04	R-385
R-390	-33.91	R-390	R-390	-1.04	R-390
R-395	-34.19	R-395	R-395	-1.04	R-395
R-400	-34.47	R-400	R-400	-1.04	R-400
R-405	-34.75	R-405	R-405	-1.04	R-405
R-410	-35.03	R-410	R-410	-1.04	R-410
R-415	-35.31	R-415	R-415	-1.04	R-415
R-420	-35.59	R-420	R-420	-1.04	R-420
R-425	-35.87	R-425	R-425	-1.04	R-425
R-430	-36.15	R-430	R-430	-1.04	R-430
R-435	-36.43	R-435	R-435	-1.04	R-435
R-440	-36.71	R-440	R-440	-1.04	R-440
R-445	-36.99	R-445	R-445	-1.04	R-445
R-450	-37.27	R-450	R-450	-1.04	R-450
R-455	-37.55	R-455	R-455	-1.04	R-455
R-460	-37.83	R-460	R-460	-1.04	R-460
R-465	-38.11	R-465	R-465	-1.04	R-465
R-470	-38.39	R-470	R-470	-1.04	R-470
R-475	-38.67	R-475	R-475	-1.04	R-475
R-480	-38.95	R-480	R-480	-1.04	R-480
R-485	-39.23	R-485	R-485	-1.04	R-485
R-490	-39.51	R-490	R-490	-1.04	R-490
R-495	-39.79	R-495	R-495	-1.04	R-495
R-500	-40.07	R-500	R-500	-1.04	R-500
R-505	-40.35	R-505	R-505	-1.04	R-505
R-510	-40.63	R-510	R-510	-1.04	R-510
R-515	-40.91	R-515	R-515	-1.04	R-515
R-520	-41.19	R-520	R-520	-1.04	R-520
R-525	-41.47	R-525	R-525	-1.04	R-525
R-530	-41.75	R-530	R-530	-1.04	R-530
R-535	-42.03	R-535	R-535	-1.04	R-535
R-540	-42.31	R-540	R-540	-1.04	R-540
R-545	-42.59	R-545	R-545	-1.04	R-545
R-550	-42.87	R-550	R-550	-1.04	R-550
R-555	-43.15	R-555	R-555	-1.04	R-555
R-560	-43.43	R-560	R-560	-1.04	R-560
R-565	-43.71	R-565	R-565	-1.04	R-565
R-570	-43.99	R-570	R-570	-1.04	R-570
R-575	-44.27	R-575	R-575	-1.04	R-575
R-580	-44.55	R-580	R-580	-1.04	R-580
R-585	-44.83	R-585	R-585	-1.04	R-585
R-590	-45.11	R-590	R-590	-1.04	R-590
R-595	-45.39	R-595	R-595	-1.04	R-595
R-600	-45.67	R-600	R-600	-1.04	R-600
R-605	-45.95	R-605	R-605	-1.04	R-605
R-610	-46.23	R-610	R-610	-1.04	R-610
R-615	-46.51	R-615	R-615	-1.04	R-615
R-620	-46.79	R-620	R-620	-1.04	R-620
R-625	-47.07	R-625	R-625	-1.04	R-625
R-630	-47.35	R-630	R-630	-1.04	R-630
R-635	-47.63	R-635	R-635	-1.04	R-635
R-640	-47.91	R-640	R-640	-1.04	R-640
R-645	-48.19	R-645	R-645	-1.04	R-645
R-650	-48.47	R-650	R-650	-1.04	R-650
R-655	-48.75	R-655	R-655	-1.04	R-655
R-660	-49.03	R-660	R-660	-1.04	R-660
R-665	-49.31	R-665	R-665	-1.04	R-665
R-670	-49.59	R-670	R-670	-1.04	R-670
R-675	-49.87	R-675	R-675	-1.04	R-675
R-680	-50.15	R-680	R-680	-1.04	R-680
R-685	-50.43	R-685	R-685	-1.04	R-685
R-690	-50.71	R-690	R-690	-1.04	R-690
R-695	-50.99	R-695	R-695	-1.04	R-695
R-700	-51.27	R-700	R-700	-1.04	R-700
R-705	-51.55	R-705	R-705	-1.04	R-705
R-710	-51.83	R-710	R-710	-1.04	R-710
R-715	-52.11	R-715	R-715	-1.04	R-715
R-720	-52.39	R-720	R-720	-1.04	R-720
R-725	-52.67	R-725	R-725	-1.04	R-725
R-730	-52.95	R-730	R-730	-1.04	R-730
R-735	-53.23	R-735	R-735	-1.04	R-735
R-740	-53.51	R-740	R-740	-1.04	R-740
R-745	-53.79	R-745	R-745	-1.04	R-745
R-750	-54.07	R-750	R-750	-1.04	R-750
R-755	-54.35	R-755	R-755	-1.04	R-755
R-760	-54.63	R-760	R-760	-1.04	R-760
R-765	-54.91	R-765	R-765	-1.04	R-765
R-770	-55.19	R-770	R-770	-1.04	R-770
R-775	-55.47	R-775	R-775	-1.04	R-775
R-780	-55.75	R-780	R-780	-1.04	R-780
R-785	-56.03	R-785	R-785	-1.04	R-785
R-790	-56.31	R-790	R-790	-1.04	R-790
R-795	-56.59	R-795	R-795	-1.04	R-795
R-800	-56.87	R-800	R-800	-1.04	R-800
R-805	-57.15	R-805	R-805	-1.04	R-805
R-810	-57.43	R-810	R-810	-1.04	R-810
R-815	-57.71	R-815	R-815	-1.04	R-815
R-820	-57.99	R-820	R-820	-1.04	R-820
R-825	-58.27	R-825	R-825	-1.04	R-825
R-830	-58.55	R-830	R-830	-1.04	R-830
R-835	-58.83	R-835	R-835	-1.04	R-835
R-840	-59.11	R-840	R-840	-1.04	R-840
R-845	-59.39	R-845	R-845	-1.04	R-845
R-850	-59.67	R-850	R-850	-1.04	R-850
R-855	-59.95	R-855	R-855	-1.04	R-855
R-860	-60.23	R-860	R-860	-1.04	R-860
R-865	-60.51	R-865	R-865	-1.04	R-865
R-870	-60.79	R-870	R-870	-1.04	R-870
R-875	-61.07	R-875	R-875	-1.04	R-875
R-880	-61.35	R-880	R-880	-1.04	R-880
R-885	-61.63	R-885	R-885	-1.04	R-885
R-890	-61.91	R-890	R-890	-1.04	R-890
R-895	-62.19	R-895	R-895	-1.04	R-895
R-900	-62.47	R-900	R-900	-1.04	R-900
R-905	-62.75	R-905	R-905	-1.04	R-905
R-910	-63.03	R-910	R-910	-1.04	R-910
R-915	-63.31	R-915	R-915	-1.04	R-915
R-920	-63.59	R-920	R-920	-1.04	R-920
R-925	-63.87	R-925	R-925	-1.04	R-925
R-930	-64.15	R-930	R-930	-1.04	R-9

Brownsville TX WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (Kbtu)		Delta Component (MBtu)		Delta Component (Kbtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	3.68	R-0	.00	R-0	.00
R-7	-4.87	R-7	-2.45	R-7	-9.39	R-7	-3.53
R-11	-5.64	R-11	1.19	R-11	-10.88	R-11	-4.03
R-19	-6.34	R-13	.88	R-19	-12.23	R-13	-4.54
R-22	-6.55	R-19	.73	R-22	-12.70	R-19	-4.79
R-30	-6.84	R-27	.53	R-30	-13.32	R-27	-5.26
R-38	-7.01	R-34	.40	R-38	-13.70	R-34	-5.55
R-49	-7.14			R-49	-14.05		
R-60	-7.22			R-60	-14.27		
Slope(DD)	757.24	Slope(DD)	471.10	Slope(DD)	1823.09	Slope(DD)	952.87
Curve(DDS)	13.772	Curve(DDS)	39.783	Curve(DDS)	-25.187	Curve(DDS)	19.233
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-3.85	R-0	-3.15	R-0	-10.29	R-0	-4.37
R-5	-4.18	R-5	2.58	R-5	2.10	R-5	4ft
R-10	-4.23	R-5	.59	R-5	2.10	R-5	8ft
R-10	-4.22	R-10	.35	R-10	1.32	R-10	4ft
R-10	-4.26	R-10	.11	R-10	1.38	R-10	8ft
Intercept	.000	Intercept	.16	Intercept	.000	Intercept	31.627
Slope(DD)	-58.37	Slope(DD)	99.16	Slope(DD)	173.02	Slope(DD)	402.70
Curve(DDS)	31.250	Curve(DDS)	2.597	Curve(DDS)	39.432	Curve(DDS)	-3.817
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-3.15	R-0	.73	R-0	-4.37	R-0	.00
R-11	-3.98	R-11	.19	R-11	-3.60	R-11	f1r
R-19	-4.13	R-19	.10	R-19	-3.67	R-19	f1r
R-30	-4.23	R-30	.03	R-30	-3.72	R-30	f1r
Intercept	-.123	Intercept	.16	Intercept	4.744	Intercept	4.715
Slope(DD)	202.10	Slope(DD)	351.90	Slope(DD)	220.56	Slope(DD)	1148.62
Curve(DDS)	-6.857	Curve(DDS)	38.091	Curve(DDS)	-53.728	Curve(DDS)	-125.685
Infiltration (/sf f1r) Window U-value		Infiltration (/sf f1r) Window U-value		Infiltration (/sf f1r) Window U-value		Infiltration (/sf f1r) Window U-value	
ELF Ach	.00	ELF Ach	.00	ELF Ach	.00	ELF Ach	.00
.0007(.73)	1.47	.0007(.73)	13.25	.0007(.68)	9.82	1-Pane	.00
.0005(.52)	.84	.0005(.52)	4.27	.0005(.48)	7.22	2-Pane	-1.09
.0003(.31)	.37	.0003(.31)	2.60	.0003(.30)	4.45	3-Pane	-1.23
Slope/.001ELF	.617	Slope(DD)	251.45	Slope/.001ELF	15.455	R-10	-1.39
Curve/.001ELF	2.110	Curve(DDS)	9.489	Curve/.001ELF	-2.029	Slope(DD)	37.39
Base Load =	19.74 MBtu	Base Load =	19.74 MBtu	Base Load =	76.72 MBtu	Curve(DDS)	9.578
Typical Load =	5.45 MBtu	Typical Load =	5.45 MBtu	Typical Load =	45.67 MBtu		
Residual Load =	.19 MBtu	Residual Load =	.19 MBtu	Residual Load =	11.31 MBtu		

Heating Load

Delta Component		Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)
Ceiling		Wall		Ceiling	
R-0	.00	R-0	.00	R-0	.00
R-7	-1.90	R-7	-1.90	R-7	-1.33
R-11	-2.20	R-11	-1.10	R-11	-1.33
R-19	-2.47	R-13	-1.23	R-13	-1.52
R-22	-2.54	R-19	-1.29	R-19	-1.73
R-30	-2.64	R-27	-1.38	R-27	-1.83
R-38	-2.70	R-34	-1.43	R-34	-2.00
R-49	-2.74			R-49	-2.11
R-60	-2.77			R-60	.70
Slope(DD)	634.68	Slope(DD)	389.11	Slope(DD)	882.80
Curve(DDS)	31.181	Curve(DDS)	42.970	Curve(DDS)	12.967

Delta Component		Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)
Slab		Heated Basement		Heated Basement	
R-0	-1.43	R-0	-1.25	R-0	-1.59
R-5	-1.48	R-5	-1.43	R-5	-1.77
R-10	-1.49	R-10	-1.45	R-10	-1.82
R-10	-1.49	R-10	-1.45	R-10	-1.82
R-10	-1.50	R-10	-1.48	R-10	-1.84
Intercept	.000	Intercept	.062	Intercept	.000
Slope(DD)	131.62	Slope(DD)	66.00	Slope(DD)	52.238
Curve(DDS)	8.872	Curve(DDS)	2.908	Curve(DDS)	149.11

Delta Component		Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)
Unheated Basement		Unheated Basement		Unheated Basement	
R-0	-1.25	R-0	-1.59	R-0	.00
R-11	-1.41	R-11	-1.07	R-11	-1.18
R-19	-1.45	R-19	-1.20	R-19	-1.40
R-30	-1.47	R-30	-1.27	R-30	-1.50
Intercept	.000	Intercept	.174	Intercept	.58
Slope(DD)	135.12	Slope(DD)	286.61	Slope(DD)	5.218
Curve(DDS)	-8.565	Curve(DDS)	33.781	Curve(DDS)	861.61

Delta Component		Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)
Infiltration		Infiltration		Infiltration	
ELF Ach		ELF Ach		ELF Ach	
.0007(.73)	.00	.0007(.68)	.00	.0007(.68)	.00
.0005(.52)	.65	.0005(.49)	-2.94	.0005(.49)	-2.94
.0003(.31)	-1.09	.0003(.30)	-6.15	.0003(.30)	-6.15
Slope/.001ELF	.083	Slope/.001ELF	15.625	Slope/.001ELF	-1089.67
Curve/.001ELF	2.188	Curve/.001ELF	-2.812	Curve/.001ELF	33.279

Delta Component		Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)
Window U-value		Window U-value		Window U-value	
1-Pane	.00	1-Pane	.00	1-Pane	.00
2-Pane	-1.11	2-Pane	-1.11	2-Pane	-1.11
3-Pane	-1.29	3-Pane	-1.29	3-Pane	-1.29
R-10	-1.51	R-10	-1.51	R-10	-1.51

Delta Component		Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)
Base Load		Base Load		Base Load	
Typical Load	8.49 MBtu	Typical Load	39.13 MBtu	Typical Load	52.15 MBtu
Residual Load	2.79 MBtu	Residual Load	17.07 MBtu	Residual Load	17.07 MBtu

Brownsville TX WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-1.95	R-7	-.62	R-7	-3.61	R-7	-.92
R-11	-2.26	R-11	-.71	R-11	-4.19	R-11	-1.05
R-19	-2.55	R-13	-.79	R-19	-4.71	R-13	-1.20
R-22	-2.62	R-19	-.83	R-22	-4.87	R-19	-1.27
R-30	-2.71	R-27	-.87	R-30	-5.09	R-27	-1.40
R-38	-2.77	R-34	-.91	R-38	-5.22	R-34	-1.48
R-49	-2.81			R-49	-5.32		
R-60	-2.84			R-60	-5.38		
Slope(DD)	612.34	Slope(DD)	308.68	Slope(DD)	1498.21	Slope(DD)	1004.92
Curve(DDS)	38.024	Curve(DDS)	50.882	Curve(DDS)	18.393	Curve(DDS)	1.488
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-1.48	R-0	-1.38	R-0	-3.16	R-0	-1.42
R-5 2ft	-1.51	R-5 4ft	-1.52	R-5 2ft	-3.28	R-5 4ft	-1.58
R-5 4ft	-1.52	R-5 8ft	-1.54	R-5 4ft	-3.30	R-5 8ft	-1.58
R-10 2ft	-1.52	R-10 4ft	-1.54	R-10 2ft	-3.30	R-10 4ft	-1.61
R-10 4ft	-1.52	R-10 8ft	-1.56	R-10 4ft	-3.31	R-10 8ft	-1.63
Intercept	.000	Intercept	-1.948	Intercept	.000	Intercept	53.111
Slope(DD)	12.31	Slope(DD)	62.83	Slope(DD)	-113.88	Slope(DD)	318.65
Curve(DDS)	15.251	Curve(DDS)	3.197	Curve(DDS)	64.419	Curve(DDS)	-1.238
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-1.38	R-0	.00	R-0	-1.42	R-0	.00
R-11 flr	-1.49	R-11 flr	-1.14	R-11 flr	-.81	R-11 flr	.06
R-19 flr	-1.51	R-19 flr	-1.26	R-19 flr	-.79	R-19 flr	-.17
R-30 flr	-1.53	R-30 flr	-1.33	R-30 flr	-.77	R-30 flr	-.31
Intercept	-.085	Intercept	.097	Intercept	4.228	Intercept	4.261
Slope(DD)	104.06	Slope(DD)	255.93	Slope(DD)	61.39	Slope(DD)	1085.37
Curve(DDS)	-7.533	Curve(DDS)	43.048	Curve(DDS)	-52.245	Curve(DDS)	-163.147
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.73)	1.07	2-Pane	-1.05	.0007(.68)	9.54	2-Pane	-.47
.0005(.52)	.55	3-Pane	-1.22	.0005(.49)	7.16	3-Pane	-1.17
.0003(.31)	-1.05	R-10	-1.43	.0003(.30)	4.50	R-10	.17
Slope/.001ELF	-.000	Slope(DD)	146.96	Slope/.001ELF	16.042	Slope(DD)	-879.07
Curve/.001ELF	2.188	Curve(DDS)	9.201	Curve/.001ELF	-3.438	Curve(DDS)	28.817
Base Load = 7.90 MBtu		Base Load = 49.59 MBtu		Base Load = 37.69 MBtu		Base Load = 15.31 MBtu	
Typical Load = 2.51 MBtu		Typical Load = 37.69 MBtu		Typical Load = 37.69 MBtu		Typical Load = 37.69 MBtu	
Residual Load = .64 MBtu		Residual Load = .64 MBtu		Residual Load = .64 MBtu		Residual Load = .64 MBtu	

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-35.36	R-7	-20.90	R-7	-2.45
R-11	-41.01	R-11	-23.87	R-11	-2.84
R-19	-46.08	R-13	-27.51	R-19	-3.19
R-22	-48.04	R-19	-29.31	R-22	-3.33
R-30	-50.66	R-27	-32.63	R-30	-3.51
R-38	-52.24	R-34	-34.67	R-38	-3.62
R-49	-53.66			R-49	-3.75
R-60	-54.58			R-60	-3.83

Slope(DD) 7784.54
Curve(DDS) -224.877

Slab (/ft)

R-0	-24.55	57.04
R-5 2ft	-30.49	21.25
R-5 4ft	-32.27	10.53
R-10 2ft	-31.59	14.63
R-10 4ft	-34.11	-56
Intercept	-32.778	
Slope(DD)	10224.06	
Curve(DDS)	-200.767	

Unheated Basement (/sf)

R-0	-14.70	12.54
R-11 flr	-32.96	.69
R-19 flr	-38.07	-2.63
R-30 flr	-41.36	-4.77

Intercept -10.512
Slope(DD) 7808.84
Curve(DDS) -646.020

Infiltration (/sf flr) Window U-value
ELF Ach

.0007(.96)	.00	26.14
.0005(.69)	-11.64	18.58
.0003(.43)	-23.17	11.10

Slope/.001ELF 36.721
Curve/.001ELF .893

Base Load = 205.37 MBtu
Typical Load = 73.84 MBtu
Residual Load = 8.90 MBtu

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-2.45	R-7	1.10	R-7	-2.84
R-11	-2.84	R-11	.85	R-11	-3.19
R-19	-3.19	R-13	.62	R-19	-3.33
R-22	-3.33	R-19	.53	R-22	-3.51
R-30	-3.51	R-27	.41	R-30	-3.62
R-38	-3.62	R-34	.34	R-38	-3.75
R-49	-3.75		.26	R-49	-3.83
R-60	-3.83		.20	R-60	-3.83

Slope(DD) 587.12
Curve(DDS) -22.544

Slab (/ft)

R-0	-2.91	-2.27
R-5 2ft	-2.76	-1.37
R-5 4ft	-2.66	-.77
R-10 2ft	-2.72	-1.13
R-10 4ft	-2.58	-.29
Intercept	1.764	
Slope(DD)	-706.77	
Curve(DDS)	30.918	

Unheated Basement (/sf)

R-0	-2.04	.32
R-11 flr	-.46	1.35
R-19 flr	.03	1.66
R-30 flr	.34	1.87

Intercept 2.421
Slope(DD) -760.52
Curve(DDS) 68.392

Infiltration (/sf flr) Window U-value
ELF Ach

.0007(.70)	.00	.24
.0005(.50)	-.13	.15
.0003(.30)	-.24	.08

Slope/.001ELF .227
Curve/.001ELF .162

Base Load = 9.23 MBtu
Typical Load = 2.14 MBtu
Residual Load = -1.92 MBtu

Slope(DD) 316.22
Curve(DDS) -16.249

Heated Basement (/ft)

R-0	-2.04	2.97
R-5 4ft	-2.37	.98
R-5 8ft	-2.40	.80
R-10 4ft	-2.48	.32
R-10 8ft	-2.47	.38
Intercept	.000	
Slope(DD)	15.59	
Curve(DDS)	1.474	

Crawl (/sf)

R-0	.00	1.64
R-11 flr	.94	2.25
R-19 flr	1.10	2.36
R-30 flr	1.30	2.49
R-38 flr	1.35	2.52
R-49 flr	1.48	2.61

Intercept 2.734
Slope(DD) -336.42
Curve(DDS) 24.184

Infiltration (/sf) Window U-value

1-Pane	.00	.64
2-Pane	-.04	.43
3-Pane	-.07	.28
R-10	-.10	.10

Slope(DD) 46.09
Curve(DDS) -.820

Buffalo NY	TMY	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (KBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Wall (/sf)	
						Delta Component (MBtu)		Delta Component (MBtu)	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Slab (/ft)		Heated Basement (/ft)	
						Unheated Basement (/sf)		Crawl (/sf)	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Infiltration (/sf flr)		Window U-value (/sf)	
						ELF Ach		1-Pane	
						Slope(DD)		2-Pane	
						Curve(DDS)		3-Pane	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
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						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	

Heating Load

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	-14.43	R-7	R-7	-1.15	R-7
R-11	-16.73	R-11	R-11	-1.17	R-11
R-19	-18.80	R-13	R-13	-1.20	R-13
R-22	-19.53	R-19	R-19	-1.17	R-19
R-30	-20.52	R-22	R-22	-1.23	R-22
R-38	-21.11	R-27	R-27	-1.26	R-27
R-49	-21.62	R-34	R-34	-1.30	R-34
R-60	-21.94			-1.32	
Slope(DD)	7249.66	Slope(DD)	Slope(DD)	418.08	Slope(DD)
Curve(DDS)	-107.013	Curve(DDS)	Curve(DDS)	-3.494	Curve(DDS)
Slab	(/ft)	Heated Basement	Slab	(/ft)	Heated Basement
R-0	-13.03	R-0	R-0	-1.79	R-0
R-5 2ft	-14.20	R-5 4ft	R-5 2ft	-1.74	R-5 4ft
R-5 4ft	-14.55	R-5 8ft	R-5 4ft	-1.72	R-5 8ft
R-10 2ft	-14.41	R-10 4ft	R-10 2ft	-1.74	R-10 4ft
R-10 4ft	-14.89	R-10 8ft	R-10 4ft	-1.69	R-10 8ft
Intercept	-17.417	Intercept	Intercept	2.477	Intercept
Slope(DD)	10370.65	Slope(DD)	Slope(DD)	-1246.66	Slope(DD)
Curve(DDS)	-175.171	Curve(DDS)	Curve(DDS)	56.469	Curve(DDS)
Unheated Basement	(/sf)	Crawl	Unheated Basement	(/sf)	Crawl
R-0	-10.29	R-0	R-0	-1.63	R-0
R-11 flr	-13.84	R-11 flr	R-11 flr	-1.17	R-11 flr
R-19 flr	-15.16	R-19 flr	R-19 flr	-1.01	R-19 flr
R-30 flr	-16.00	R-30 flr	R-30 flr	-1.10	R-30 flr
Intercept	-5.041	Intercept	Intercept	1.767	Intercept
Slope(DD)	5463.17	Slope(DD)	Slope(DD)	-694.92	Slope(DD)
Curve(DDS)	-552.698	Curve(DDS)	Curve(DDS)	70.105	Curve(DDS)
Infiltration	(/sf flr)	Window U-value	Infiltration	(/sf flr)	Window U-value
ELF Ach		1-Pane	ELF Ach		1-Pane
.0007(***)	.00	2-Pane	.0007(.70)	.00	.00
.0005(.72)	-8.88	3-Pane	.0005(.50)	-.05	.07
.0003(.43)	-17.40	R-10	.0003(.30)	-.06	.19
Slope/.001ELF	32.437	Slope(DD)	Slope/.001ELF	-.229	.32
Curve/.001ELF	3.802	Curve(DDS)	Curve/.001ELF	.365	-260.24
Base Load =	96.20 MBtu	Base Load =	Base Load =	5.82 MBtu	
Typical Load =	31.93 MBtu	Typical Load =	Typical Load =	3.70 MBtu	
Residual Load =	1.00 MBtu	Residual Load =	Residual Load =	1.98 MBtu	

Burlington VT TMY One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	38.85	R-7	-22.98	R-7	-2.96	R-7	-1.39
R-11	45.06	R-11	-26.25	R-11	-3.44	R-11	-1.77
R-19	50.63	R-13	-30.28	R-19	-3.86	R-13	-1.80
R-22	52.81	R-19	-32.28	R-22	-4.04	R-19	-1.97
R-30	55.73	R-27	-35.96	R-30	-4.28	R-27	-1.06
R-38	57.49	R-34	-38.22	R-38	-4.43	R-34	-1.18
R-49	59.08			R-49	-4.54		
R-60	60.11			R-60	-4.61	R-34	-1.26
Slope(DD)	8707.19	Slope(DD)	8401.19	Slope(DD)	701.65	Slope(DD)	352.00
Curve(DDS)	-269.002	Curve(DDS)	-164.760	Curve(DDS)	-25.782	Curve(DDS)	-17.304
Slab		Heated Basement		Slab		Heated Basement	
	(/ft)		(/ft)		(/ft)		(/ft)
R-0	-24.45	R-0	-13.68	R-0	-2.56	R-0	-1.79
R-5 2ft	31.36	R-5 4ft	-20.69	R-5 2ft	-2.38	R-5 4ft	-2.04
R-5 4ft	33.42	R-5 8ft	-23.26	R-5 4ft	-2.28	R-5 8ft	-2.02
R-10 2ft	32.65	R-10 4ft	-22.56	R-10 2ft	-2.34	R-10 4ft	-2.09
R-10 4ft	35.54	R-10 8ft	-26.59	R-10 4ft	-2.23	R-10 8ft	-2.08
Intercept	-35.793	Intercept	.000	Intercept	.512	Intercept	.000
Slope(DD)	11229.48	Slope(DD)	5641.92	Slope(DD)	-477.19	Slope(DD)	-22.60
Curve(DDS)	-197.484	Curve(DDS)	-58.748	Curve(DDS)	15.144	Curve(DDS)	1.574
Unheated Basement		Crawl		Unheated Basement		Crawl	
	(/sf)		(/sf)		(/sf)		(/sf)
R-0	-13.68	R-0	.00	R-0	-1.79	R-0	.00
R-11 flr	34.15	R-11 flr	-35.62	R-11 flr	-.21	R-11 flr	.94
R-19 flr	39.90	R-19 flr	-41.83	R-19 flr	.23	R-19 flr	1.06
R-30 flr	43.60	R-30 flr	-45.82	R-30 flr	.51	R-30 flr	1.19
Intercept	-11.649	R-38 flr	-46.73	Intercept	2.165	R-38 flr	1.22
Slope(DD)	8792.64	R-49 flr	-49.36	Slope(DD)	-667.78	R-49 flr	1.31
Curve(DDS)	-729.907	Intercept	-12.822	Curve(DDS)	54.732	Intercept	2.266
Infiltration	(/sf flr)	Slope(DD)	8031.50	Infiltration	(/sf flr)	Slope(DD)	-199.55
ELF Ach		Curve(DDS)	-199.070	ELF Ach		Curve(DDS)	3.782
.0007(.81)	.00	Window U-value		.0007(.56)	.00	Window U-value	
.0005(.58)	-11.13	1-Pane	.00	.0005(.40)	-.07	1-Pane	.00
.0003(.35)	-22.12	2-Pane	-18.16	.0003(.24)	-.15	2-Pane	.05
		3-Pane	-24.46		.09	3-Pane	.04
		R-10	-31.86			R-10	.02
Slope/.001ELF	34.773	Slope(DD)	8565.09	Slope/.001ELF	.325	Slope(DD)	38.23
Curve/.001ELF	1.136	Curve(DDS)	-48.552	Curve/.001ELF	-.081	Curve(DDS)	-1.486

Base Load = 216.81 MBtu
 Typical Load = 77.06 MBtu
 Residual Load = 11.20 MBtu

Base Load = 9.09 MBtu
 Typical Load = 1.54 MBtu
 Residual Load = -2.09 MBtu

Heating Load

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	-16.18	R-7	R-7	-1.11	R-7
R-11	-18.76	R-11	R-11	-1.28	R-11
R-19	-21.08	R-13	R-19	-1.44	R-13
R-22	-21.93	R-19	R-22	-1.51	R-19
R-30	-23.06	R-27	R-30	-1.60	R-27
R-38	-23.75	R-34	R-38	-1.65	R-34
R-49	-24.35		R-49	-1.66	
R-60	-24.73		R-60	-1.67	
Slope(DD)	8475.64	Slope(DD)	Slope(DD)	552.88	Slope(DD)
Curve(DDS)	-169.359	Curve(DDS)	Curve(DDS)	-7.467	Curve(DDS)
Slab	(/ft)	Heated Basement	Slab	(/ft)	Heated Basement
R-0	-12.17	R-0	R-0	-1.01	R-0
R-5 2ft	-13.89	R-5 4ft	R-5 2ft	-.93	R-5 4ft
R-5 4ft	-14.37	R-5 8ft	R-5 4ft	-.91	R-5 8ft
R-10 2ft	-14.20	R-10 4ft	R-10 2ft	-.93	R-10 4ft
R-10 4ft	-14.85	R-10 8ft	R-10 4ft	-.87	R-10 8ft
Intercept	-28.240	Intercept	Intercept	-2.508	Intercept
Slope(DD)	9904.23	Slope(DD)	Slope(DD)	-932.79	Slope(DD)
Curve(DDS)	-106.941	Curve(DDS)	Curve(DDS)	34.214	Curve(DDS)
Unheated Basement	(/sf)	Crawl	Unheated Basement	(/sf)	Crawl
R-0	-8.49	R-0	R-0	-.70	R-0
R-11 flr	-13.45	R-11 flr	R-11 flr	.00	R-11 flr
R-19 flr	-15.14	R-19 flr	R-19 flr	.19	R-19 flr
R-30 flr	-16.23	R-30 flr	R-30 flr	.31	R-30 flr
Intercept	-7.032	Intercept	Intercept	2.159	Intercept
Slope(DD)	6927.09	Slope(DD)	Slope(DD)	-732.58	Slope(DD)
Curve(DDS)	-668.759	Curve(DDS)	Curve(DDS)	58.298	Curve(DDS)
Infiltration	(/sf flr)	Window U-value	Infiltration	(/sf flr)	Window U-value
ELF Ach		ELF Ach	ELF Ach		
.0007(.83)	.00	1-Pane	.0007(.56)	.00	1-Pane
.0005(.59)	-8.45	2-Pane	.0005(.40)	-.04	2-Pane
.0003(.36)	-16.50	3-Pane	.0003(.24)	-.08	3-Pane
	9.44	R-10			R-10
Slope/.001ELF	30.208	Slope(DD)	Slope/.001ELF	.167	Slope(DD)
Curve/.001ELF	4.167	Curve(DDS)	Curve/.001ELF	.000	Curve(DDS)
Base Load =	105.13 MBtu	Base Load =	Base Load =	6.31 MBtu	
Typical Load =	34.43 MBtu	Typical Load =	Typical Load =	3.61 MBtu	
Residual Load =	2.67 MBtu	Residual Load =	Residual Load =	1.92 MBtu	

Burlington VT TMY MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	43.13	R-7	-6.72	R-7	-1.13	R-7	-0.15
R-11	16.77	R-11	-7.68	R-11	-1.31	R-11	-0.17
R-19	12.57	R-13	-8.78	R-19	-1.47	R-13	-0.21
R-22	8.79	R-19	-9.33	R-22	-1.54	R-19	-0.22
R-30	7.42	R-27	-10.28	R-30	-1.64	R-27	-0.25
R-38	5.59	R-34	-10.87	R-38	-1.69	R-34	-0.26
R-49	4.49			R-49	-1.74		
R-60	3.56			R-60	-1.77		
	2.96						
Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)	
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-13.37	R-0	-10.36	R-0	-0.66	R-0	-0.54
R-5	91.14	R-5	4ft	R-5	2ft	R-5	4ft
R-10	45.97	R-10	8ft	R-10	4ft	R-10	8ft
R-15	32.64	R-15	10.81	R-15	2ft	R-15	4ft
R-20	37.81	R-20	14.08	R-20	4ft	R-20	8ft
R-25	19.31	R-25	18.44	R-25	Intercept	R-25	Intercept
R-30	18.629	R-30	Intercept	R-30	Intercept	R-30	Intercept
R-35	11666.81	R-35	Slope(DD)	R-35	Slope(DD)	R-35	Slope(DD)
R-40	-184.889	R-40	Curve(DDS)	R-40	Curve(DDS)	R-40	Curve(DDS)
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-10.36	R-0	.00	R-0	-0.54	R-0	.00
R-5	9.57	R-5	26.84	R-5	.77	R-5	.38
R-10	2.95	R-10	4.51	R-10	.06	R-10	.45
R-15	.48	R-15	.68	R-15	1.02	R-15	.57
R-20	-1.11	R-20	-1.75	R-20	1.19	R-20	.60
		R-25	-2.30			R-25	.68
		R-30	-3.90			R-30	2.226
		R-35	-7.557			R-35	-496.78
		R-40	7500.72			R-40	47.386
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.81)	.00	1-Pane	.00	.0007(.56)	.00	1-Pane	.00
.0005(.59)	-8.45	2-Pane	-13.97	.0005(.40)	-.05	2-Pane	.14
.0003(.36)	-16.44	3-Pane	-18.20	.0003(.24)	-.04	3-Pane	.27
	9.28	R-10	-23.16			R-10	.42
			16.15				-.66
Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)	
Base Load =		Base Load =		Base Load =		Base Load =	
Typical Load =		Typical Load =		Typical Load =		Typical Load =	
Residual Load =		Residual Load =		Residual Load =		Residual Load =	
99.28 MBtu		99.28 MBtu		99.28 MBtu		99.28 MBtu	
31.73 MBtu		31.73 MBtu		31.73 MBtu		31.73 MBtu	
2.94 MBtu		2.94 MBtu		2.94 MBtu		2.94 MBtu	
29.520		29.520		29.520		29.520	
4.740		4.740		4.740		4.740	
-294.85		-294.85		-294.85		-294.85	
5.986		5.986		5.986		5.986	

Heating Load

Delta Component (MBtu)			Delta Component (KBtu)			Delta Component (KBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	14.45	R-0	.00	12.25	R-0	.00	8.49	R-0	.00	3.90
R-7	-13.49	5.69	R-7	-7.35	5.71	R-7	-8.37	3.05	R-7	-2.71	1.49
R-11	-15.65	4.29	R-11	-8.40	4.78	R-11	-9.71	2.18	R-11	-3.10	1.14
R-19	-17.58	3.04	R-13	-9.67	3.64	R-19	-10.91	1.40	R-13	-3.51	.78
R-22	-18.31	2.56	R-19	-10.30	3.08	R-22	-11.27	1.17	R-19	-3.71	.60
R-30	-19.30	1.92	R-27	-11.23	2.26	R-30	-11.75	.86	R-27	-3.87	.46
R-38	-19.89	1.54	R-34	-11.80	1.75	R-38	-12.04	.67	R-34	-3.97	.37
R-49	-20.36	1.23				R-49	-12.22	.55			
R-60	-20.66	1.04				R-60	-12.34	.47			
Slope(DD)	2809.71		Slope(DD)	2195.23		Slope(DD)	1219.54		Slope(DD)	381.44	
Curve(DDS)	-62.746		Curve(DDS)	15.391		Curve(DDS)	35.707		Curve(DDS)	63.990	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-10.16	34.26	R-0	-7.08	52.82	R-0	-6.16	-42.54	R-0	-2.70	-21.69
R-5	-12.17	22.16	R-5	-10.00	35.23	R-5	-6.10	-42.18	R-5	-2.89	-22.84
R-10	-12.64	19.32	R-5	-10.81	30.35	R-5	-5.99	-41.51	R-5	-2.85	-22.60
R-10	-12.50	20.17	R-10	-10.70	31.01	R-10	-6.08	-42.06	R-10	-2.94	-23.14
R-10	-13.09	16.61	R-10	-11.73	24.81	R-10	-5.94	-41.21	R-10	-2.90	-22.90
Intercept	10.145		Intercept	10.943		Intercept	-39.154		Intercept	-22.612	
Slope(DD)	1891.66		Slope(DD)	1414.18		Slope(DD)	-756.41		Slope(DD)	-44.29	
Curve(DDS)	31.067		Curve(DDS)	-8.795		Curve(DDS)	40.971		Curve(DDS)	1.730	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.08	5.69	R-0	.00	10.29	R-0	-2.70	-2.34	R-0	.00	-.59
R-11	-11.88	2.58	R-11	-11.08	3.10	R-11	-.77	-1.09	R-11	.92	.01
R-19	-13.08	1.80	R-19	-12.77	2.00	R-19	-.33	-.80	R-19	.92	.01
R-30	-13.85	1.30	R-30	-13.64	1.43	R-30	-.04	-.61	R-30	.94	.03
Intercept	-.020		R-38	-13.84	1.30	Intercept	-.131		R-38	.95	.03
Slope(DD)	1776.59		R-49	-14.41	.93	Slope(DD)	-642.35		R-49	.97	.04
Curve(DDS)	-129.158		Intercept	.000		Slope(DD)	41.332		Intercept	.000	
Infiltration (/sf flr)	Window U-value		Slope(DD)	1766.58		Curve(DDS)	46.877		Slope(DD)	60.08	
ELF Ach			Curve(DDS)	46.877		Infiltration (/sf flr)	Window U-value		Curve(DDS)	-33.961	
.0007(.71)	.00	5.79	1-Pane	.00	45.91	ELF Ach			1-Pane	.00	-7.28
.0005(.53)	-3.26	3.67	2-Pane	-5.53	15.99	.0007(.53)	.00	3.64	2-Pane	.15	-6.47
.0003(.32)	-5.95	1.93	3-Pane	-6.67	9.85	.0005(.39)	-1.55	2.63	3-Pane	.65	-4.28
Slope/.001ELF	5.032		R-10	-8.00	2.62	.0003(.23)	-3.14	1.60	R-10	1.03	-1.71
Curve/.001ELF	4.627		Slope(DD)	1054.92		Slope/.001ELF	5.422		Slope(DD)	-770.65	
			Curve(DDS)	25.920		Curve/.001ELF	-.325		Curve(DDS)	18.742	
Base Load = 63.26 MBtu			Base Load = 42.15 MBtu			Base Load = 27.51 MBtu			Base Load = 9.38 MBtu		
Typical Load = 22.94 MBtu			Typical Load = 27.51 MBtu			Typical Load = 27.51 MBtu			Typical Load = 27.51 MBtu		
Residual Load = -.18 MBtu			Residual Load = -.18 MBtu			Residual Load = -.18 MBtu			Residual Load = -.18 MBtu		

Cooling Load

Charleston SC WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	14.96	.00	R-0	.00	R-0	.00
R-7	-5.67	5.50	-3.18	R-7	-3.09	R-7	-.93
R-11	-6.58	3.99	-3.63	R-11	-3.59	R-11	-1.06
R-19	-7.39	2.64	-4.10	R-19	-4.03	R-19	-1.17
R-22	-7.65	2.21	-4.33	R-22	-4.13	R-19	-1.22
R-30	-7.99	1.64	-4.65	R-30	-4.25	R-27	-1.29
R-38	-8.20	1.29	-4.84	R-38	-4.33	R-34	-1.33
R-49	-8.35	1.05		R-49	-4.43		
R-60	-8.44	.89		R-60	-4.49		
Slope(DD)	2342.91		1582.34	Slope(DD)	913.36	Slope(DD)	254.05
Curve(DDS)	30.303		102.731	Curve(DDS)	67.726	Curve(DDS)	57.458
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-4.38	22.65	-3.49	R-0	-2.22	R-0	-.78
R-5	-4.79	12.40	-4.30	R-5	-2.19	R-5	-.79
R-10	-4.87	10.40	-4.46	R-10	-2.13	R-10	-.81
R-15	-4.84	11.15	-4.45	R-15	-2.18	R-15	-.78
R-20	-4.93	8.90	-4.62	R-20	-2.12	R-20	-.76
Intercept	6.010		8.485	Intercept	-69.110	Intercept	-36.999
Slope(DD)	606.02		715.65	Slope(DD)	-1304.48	Slope(DD)	-224.43
Curve(DDS)	85.990		5.485	Curve(DDS)	67.956	Curve(DDS)	4.268
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-3.49	2.99	.00	R-0	-.78	R-0	.00
R-11	-4.49	1.33	-3.83	R-11	-.02	R-11	.62
R-19	-4.75	.89	-4.36	R-19	.21	R-19	.67
R-30	-4.92	.61	-4.63	R-30	.35	R-30	.72
R-38			-4.69			R-38	.73
R-49			-4.87			R-49	.76
Intercept	-.135		.000	Intercept	-.078	Intercept	-.005
Slope(DD)	1008.29		1315.64	Slope(DD)	-894.86	Slope(DD)	-136.58
Curve(DDS)	-77.650		78.491	Curve(DDS)	77.946	Curve(DDS)	-23.441
Infiltration (/sf flr)		Window U-value		Infiltration (/sf flr)		Window U-value	
ELF Ach				ELF Ach			
.0007(.74)	.00	4.35	.00	.0007(.53)	.00	1-Pane	.00
.0005(.53)	-2.39	2.35	-3.83	.0005(.39)	-1.02	2-Pane	.36
.0003(.32)	-4.06	.96	-4.57	.0003(.24)	-2.03	3-Pane	.94
			-5.44			R-10	1.63
Slope/.001ELF	.958		819.69	Slope/.001ELF	4.125	Slope(DD)	-1387.35
Curve/.001ELF	7.500		26.128	Curve/.001ELF	.104	Curve(DDS)	31.881
Base Load = 28.75 MBtu				Base Load = 28.06 MBtu			
Typical Load = 11.51 MBtu				Typical Load = 22.57 MBtu			
Residual Load = 2.89 MBtu				Residual Load = 11.94 MBtu			

Heating Load

Delta Component -		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)
Ceiling		Wall	
R-0	.00	R-0	.00
R-7	-5.66	R-7	-2.13
R-11	-6.56	R-11	-2.43
R-19	-7.38	R-13	-2.73
R-22	-7.61	R-19	-2.88
R-30	-7.93	R-27	-3.07
R-38	-8.12	R-34	-3.19
R-49	-8.25		
R-60	-8.34		
Slope(DD)	2098.79	Slope(DD)	1399.24
Curve(DDS)	64.225	Curve(DDS)	129.276

Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)
Slab		Heated Basement	
R-0	-4.81	R-0	-4.16
R-5 2ft	-5.15	R-5 4ft	-4.89
R-5 4ft	-5.20	R-5 8ft	-5.00
R-10 2ft	-5.18	R-10 4ft	-4.99
R-10 4ft	-5.25	R-10 8ft	-5.14
Intercept	9.41	Intercept	4.949
Slope(DD)	253.31	Slope(DD)	670.13
Curve(DDS)	119.272	Curve(DDS)	9.492

Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)
Unheated Basement		Crawl	
R-0	-4.16	R-0	.00
R-11 flr	-4.94	R-11 flr	-4.13
R-19 flr	-5.15	R-19 flr	-4.68
R-30 flr	-5.29	R-30 flr	-4.91
Intercept	-2.04	R-38 flr	-4.97
Slope(DD)	812.27	R-49 flr	-5.12
Curve(DDS)	-63.658	Intercept	.000
Infiltration	(/sf flr)	Slope(DD)	1182.85
ELF Ach		Curve(DDS)	119.695
.0007(.74)	.00	Window U-value	(/sf)
.0005(.53)	-2.38	1-Pane	.00
.0003(.32)	-4.00	2-Pane	-3.88
		3-Pane	-4.56
		R-10	-5.38
			1.76

Slope/.001ELF	.479	Slope(DD)	678.32
Curve/.001ELF	7.865	Curve(DDS)	30.392

Base Load = 26.98 MBtu
 Typical Load = 10.66 MBtu
 Residual Load = 3.22 MBtu

Cooling Load

Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)
Ceiling		Wall	
R-0	.00	R-0	.00
R-7	-2.79	R-7	-2.45
R-11	-3.23	R-11	-2.69
R-19	-3.64	R-13	-2.74
R-22	-3.74	R-19	-2.78
R-30	-3.87	R-27	-2.78
R-38	-3.95	R-34	-2.78
R-49	-4.02		
R-60	-4.06		
Slope(DD)	882.25	Slope(DD)	-83.82
Curve(DDS)	53.184	Curve(DDS)	101.357

Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)
Slab		Heated Basement	
R-0	-1.61	R-0	-1.60
R-5 2ft	-1.58	R-5 4ft	-1.59
R-5 4ft	-1.58	R-5 8ft	-1.59
R-10 2ft	-1.60	R-10 4ft	-1.60
R-10 4ft	-1.55	R-10 8ft	-1.59
Intercept	-75.592	Intercept	-46.593
Slope(DD)	-970.47	Slope(DD)	41.13
Curve(DDS)	51.829	Curve(DDS)	-1.014

Delta Component		Delta Component	
(MBtu)	(/sf)	(MBtu)	(/sf)
Unheated Basement		Crawl	
R-0	-1.60	R-0	.00
R-11 flr	.13	R-11 flr	.76
R-19 flr	.28	R-19 flr	.79
R-30 flr	.38	R-30 flr	.80
Intercept	-2.63	R-38 flr	.80
Slope(DD)	-560.76	R-49 flr	.81
Curve(DDS)	30.871	Intercept	.000
Infiltration	(/sf flr)	Slope(DD)	75.03
ELF Ach		Curve(DDS)	-64.782
.0007(.53)	.00	Window U-value	(/sf)
.0005(.39)	-1.01	1-Pane	.00
.0003(.23)	-1.97	2-Pane	.35
		3-Pane	.91
		R-10	1.57
			-2.96

Slope/.001ELF	3.417	Slope(DD)	-1331.57
Curve/.001ELF	.677	Curve(DDS)	30.544

Base Load = 25.65 MBtu
 Typical Load = 21.06 MBtu
 Residual Load = 10.78 MBtu

Cheyenne WY		WYEC	One Story		Prototype	Siding	Series Two	
							Cooling Load	
							Heating Load	
							Delta Component	
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Heating Load

Delta Component (MBtu)			Delta Component (MBtu)			Delta Component (MBtu)			Delta Component (MBtu)			
Ceiling			Wall			Ceiling			Wall			
(/sf)			(/sf)			(/sf)			(/sf)			
R-0	.00	43.46	R-0	.00	38.18	R-0	.00	3.73	R-0	.00	1.47	
R-7	-15.99	16.81	R-7	-9.69	17.85	R-7	-1.34	1.51	R-7	-1.34	.79	
R-11	-18.55	12.55	R-11	-11.07	14.95	R-11	-1.55	1.15	R-11	-1.55	.69	
R-19	-20.84	8.73	R-13	-12.67	11.60	R-19	-1.74	.83	R-13	-1.74	.53	
R-22	-21.65	7.37	R-19	-13.46	9.94	R-22	-1.82	.70	R-19	-1.82	.44	
R-30	-22.74	5.56	R-27	-14.78	7.17	R-30	-1.92	.53	R-27	-1.92	.54	
R-38	-23.40	4.46	R-34	-15.59	5.47	R-38	-1.98	.43	R-34	-1.98	.27	
R-49	-23.96	3.53				R-49	-2.03	.34				
R-60	-24.32	2.93				R-60	-2.07	.28				
Slope(DD)			Slope(DD)			Slope(DD)			Slope(DD)			
Curve(DDS)			Curve(DDS)			Curve(DDS)			Curve(DDS)			
8021.12			6980.25			780.91			349.19			
-116.428			22.190			-25.545			-14.056			
Slab			Heated Basement			Slab			Heated Basement			
(/ft)			(/ft)			(/ft)			(/ft)			
R-0	-11.57	60.96	R-0	-8.32	142.21	R-0	-.95	-9.15	R-0	-.63	-1.15	
R-5	-13.12	22.21	R-5	4ft	-10.60	85.21	R-5	2ft	-7.40	R-5	4ft	-1.65
R-5	-13.53	11.96	R-5	8ft	-11.26	68.71	R-5	4ft	-6.40	R-5	8ft	-1.40
R-10	-13.38	15.71	R-10	4ft	-11.12	72.21	R-10	2ft	-6.90	R-10	4ft	-1.65
R-10	-13.91	2.46	R-10	8ft	-12.03	49.46	R-10	4ft	-5.40	R-10	8ft	-1.15
Intercept	-23.512	.000	Intercept			Intercept	-1.714		Intercept			
Slope(DD)	8410.09	5300.72	Slope(DD)			Slope(DD)	-1377.10		Slope(DD)			
Curve(DDS)	-37.671	-41.771	Curve(DDS)			Curve(DDS)	63.689		Curve(DDS)			
Unheated Basement			Crawl			Unheated Basement			Crawl			
(/sf)			(/sf)			(/sf)			(/sf)			
R-0	-8.32	9.48	R-0	.00	23.35	R-0	-.63	-.08	R-0	.00	.97	
R-11	-12.85	1.93	R-11	f1r	-12.71	2.16	R-11	f1r	-.23	R-11	f1r	1.41
R-19	-14.38	-.63	R-19	f1r	-14.80	-1.32	R-19	f1r	-.11	R-19	f1r	.28
R-30	-15.37	-2.27	R-30	f1r	-16.01	-3.34	R-30	f1r	-.03	R-30	f1r	.30
Intercept	-6.829		R-38	f1r	-16.29	-3.80	R-38	f1r	.30	R-38	f1r	1.47
Slope(DD)	6270.04	-8.317	R-49	f1r	-17.09	-5.13	R-49	f1r	.31	R-49	f1r	1.49
Curve(DDS)	-602.460	6317.77	Intercept			Intercept	1.279		Intercept			
Infiltration			Window U-value			Infiltration			Window U-value			
ELF Ach			ELF Ach			ELF Ach			ELF Ach			
.0007(***)			1-Pane			.0007(.59)			1-Pane			
.0005(.71)			2-Pane			.0005(.42)			2-Pane			
.0003(.44)			3-Pane			.0003(.25)			3-Pane			
-14.84			R-10			.0003(.25)			R-10			
-22.48			12.84			.0003(.25)			.04			
Slope/.001ELF			Slope(DD)			Slope/.001ELF			Slope(DD)			
Curve/.001ELF			Curve(DDS)			Curve/.001ELF			Curve(DDS)			
23.416			5368.81			.167			32.36			
7.501			39.053			.000			-.724			

Base Load = 97.55 MBtu
 Typical Load = 27.85 MBtu
 Residual Load = 7.27 MBtu

Base Load = 6.38 MBtu
 Typical Load = 3.21 MBtu
 Residual Load = 1.26 MBtu

Cheyenne WY

WYEC

MApartment Prototype Siding

Series Two

Heating Load

Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)		Delta Component (KBtu)	Delta Component (MBtu)		Delta Component (KBtu)
Ceiling	Wall		Ceiling	Wall	
R-0 .00	R-0 .00	38.33	R-0 .00	R-0 .00	3.82
R-7 -15.61	R-7 -6.59	17.55	R-7 -1.36	R-7 1.56	1.71
R-11 -18.10	R-11 -7.53	14.59	R-11 -1.58	R-11 1.19	1.19
R-19 -20.34	R-13 -8.57	11.29	R-19 -1.77	R-13 .87	.87
R-22 -21.11	R-19 -9.09	9.86	R-22 -1.85	R-19 .74	.74
R-30 -22.13	R-27 -9.95	6.94	R-30 -1.95	R-27 .57	.57
R-38 -22.75	R-34 -10.48	5.27	R-38 -2.01	R-34 .47	.47
R-49 -23.25			R-49 -2.08		.36
R-60 -23.57			R-60 -2.12		.29
Slope(DD) 7363.18	Slope(DD) 6689.41		Slope(DD) 825.13	Slope(DD) 311.59	
Curve(DDS) -47.151	Curve(DDS) 81.306		Curve(DDS) -30.492	Curve(DDS) -11.316	
Heated Basement			Heated Basement		
Slab			Slab		
R-0 -12.80	R-0 -10.19	175.67	R-0 -.57	R-0 -5.36	-45
R-5 2ft -14.06	R-5 4ft -12.30	105.33	R-5 -.53	R-5 4ft -4.02	-46
R-5 4ft -14.43	R-5 8ft -12.91	85.17	R-5 -.51	R-5 8ft -3.19	-45
R-10 2ft -14.28	R-10 4ft -12.79	89.17	R-10 -.52	R-10 4ft -3.69	-48
R-10 4ft -14.78	R-10 8ft -13.63	61.17	R-10 -.49	R-10 8ft -2.69	-44
Intercept -10.766	Intercept .000		Intercept -.322	Intercept .000	
Slope(DD) 11278.88	Slope(DD) 6558.96		Slope(DD) -859.03	Slope(DD) -124.75	
Curve(DDS) -173.714	Curve(DDS) -51.893		Curve(DDS) 36.148	Curve(DDS) 2.324	
Unheated Basement			Unheated Basement		
Slab			Slab		
R-0 -10.19	R-0 .00	25.77	R-0 -.45	R-0 -.07	.69
R-11 flr -13.90	R-11 flr -13.19	3.78	R-11 -.18	R-11 flr .38	1.02
R-19 flr -15.28	R-19 flr -15.35	.18	R-19 -.09	R-19 flr .53	1.04
R-30 flr -16.16	R-30 flr -16.62	-1.94	R-30 -.04	R-30 flr .63	1.05
Intercept -5.307	Intercept -17.75	-3.82	Intercept .904	R-38 flr .21	1.05
Slope(DD) 5718.72	Intercept -7.120		Slope(DD) -373.12	R-49 flr .22	1.05
Curve(DDS) -579.352	Slope(DD) 6584.06		Curve(DDS) 35.821	Intercept 1.048	
	Curve(DDS) -33.283			Slope(DD) 11.32	
Infiltration			Infiltration		
ELF Ach	Window U-value		ELF Ach	Window U-value	
.0007(.97)	.00	169.49	.0007(.59)	1-Pane .00	.78
.0005(.71)	1-Pane -14.70	67.41	.0005(.42)	2-Pane -.05	.40
.0003(.44)	2-Pane -18.34	42.15	.0003(.25)	3-Pane -.08	.26
	R-10 -22.61	12.44		R-10 -.10	.09
Slope/.001ELF 22.562	Slope(DD) 5179.01		Slope/.001ELF .313	Slope(DD) 37.40	
Curve/.001ELF 8.177	Curve(DDS) 47.010		Curve/.001ELF -.104	Curve(DDS) -.296	

Base Load = 92.10 MBtu
 Typical Load = 25.49 MBtu
 Residual Load = 7.54 MBtu

Base Load = 5.31 MBtu
 Typical Load = 2.44 MBtu
 Residual Load = .46 MBtu

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-31.83	R-7	-18.92	R-7	-5.00	R-7	-1.45
R-11	-36.91	R-11	-21.61	R-11	-5.80	R-11	-1.66
R-19	-41.47	R-13	-24.87	R-19	-6.52	R-13	-1.95
R-22	-43.23	R-19	-26.48	R-22	-6.79	R-19	-2.09
R-30	-45.59	R-27	-29.40	R-30	-7.15	R-27	-2.31
R-38	-47.01	R-34	-31.20	R-38	-7.37	R-34	-2.45
R-49	-48.27			R-49	-7.59		
R-60	-49.09			R-60	-7.74		
Slope(DD)	6977.53	Slope(DD)	6627.85	Slope(DD)	1111.40	Slope(DD)	560.40
Curve(DDS)	-198.305	Curve(DDS)	-96.872	Curve(DDS)	-33.356	Curve(DDS)	-13.795
Slab		Heated Basement		Slab		Heated Basement	
	(/ft)		(/ft)		(/ft)		(/ft)
R-0	-24.97	R-0	-16.35	R-0	-4.58	R-0	-2.89
R-5 2ft	-30.52	R-5 4ft	-23.03	R-5 2ft	-4.37	R-5 4ft	-3.17
R-5 4ft	-32.11	R-5 8ft	-25.20	R-5 4ft	-4.21	R-5 8ft	-3.16
R-10 2ft	-31.55	R-10 4ft	-24.79	R-10 2ft	-4.31	R-10 4ft	-3.26
R-10 4ft	-33.76	R-10 8ft	-28.14	R-10 4ft	-4.11	R-10 8ft	-3.25
Intercept	-15.715	Intercept	.000	Intercept	-1.928	Intercept	.000
Slope(DD)	8407.39	Slope(DD)	4723.43	Slope(DD)	-984.39	Slope(DD)	14.13
Curve(DDS)	-121.212	Curve(DDS)	-45.205	Curve(DDS)	41.750	Curve(DDS)	1.163
Unheated Basement		Crawl		Unheated Basement		Crawl	
	(/sf)		(/sf)		(/sf)		(/sf)
R-0	-16.35	R-0	.00	R-0	-2.89	R-0	.00
R-11 flr	-30.76	R-11 flr	-29.71	R-11 flr	-.85	R-11 flr	.88
R-19 flr	-34.83	R-19 flr	-34.79	R-19 flr	-.31	R-19 flr	.94
R-30 flr	-37.45	R-30 flr	-38.01	R-30 flr	.03	R-30 flr	1.02
Intercept	-5.678	Intercept	-6.456	Intercept	2.756	Intercept	2.872
Slope(DD)	6233.26	Slope(DD)	6450.79	Slope(DD)	-804.63	Slope(DD)	-80.06
Curve(DDS)	-520.246	Curve(DDS)	-129.310	Curve(DDS)	62.194	Curve(DDS)	-12.173
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach	(/sf flr)	1-Pane	(/sf)	ELF Ach	(/sf flr)	1-Pane	(/sf)
.0007(.89)	.00	2-Pane	.00	.0007(.58)	.00	2-Pane	.00
.0005(.64)	-9.79	3-Pane	-15.65	.0005(.42)	-.47	3-Pane	-.25
.0003(.39)	-19.40	R-10	-20.61	.0003(.25)	-.91	R-10	-.32
Slope/.001ELF	30.032	Slope(DD)	6453.57	Slope/.001ELF	1.234	Slope(DD)	91.81
Curve/.001ELF	1.461	Curve(DDS)	-17.531	Curve/.001ELF	.244	Curve(DDS)	.016
Base Load = 178.08 MBtu				Base Load = 20.33 MBtu			
Typical Load = 56.12 MBtu				Typical Load = 6.98 MBtu			
Residual Load = 2.79 MBtu				Residual Load = -1.96 MBtu			

Chicago IL WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-13.22	R-7	-8.07	R-7	-1.93
R-11	-15.33	R-11	-9.22	R-11	-2.23
R-19	-17.23	R-13	-10.55	R-19	-2.61
R-22	-17.90	R-19	-11.21	R-22	-2.61
R-30	-18.81	R-27	-12.36	R-30	-2.76
R-38	-19.35	R-34	-13.07	R-38	-2.84
R-49	-19.82			R-49	-2.92
R-60	-20.12			R-60	-2.97
Slope(DD)	6664.27	Slope(DD)	6047.31	Slope(DD)	1077.39
Curve(DDS)	-100.948	Curve(DDS)	-13.993	Curve(DDS)	-29.916

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-13.22	R-7	-8.07	R-7	-1.93
R-11	-15.33	R-11	-9.22	R-11	-2.23
R-19	-17.23	R-13	-10.55	R-19	-2.61
R-22	-17.90	R-19	-11.21	R-22	-2.61
R-30	-18.81	R-27	-12.36	R-30	-2.76
R-38	-19.35	R-34	-13.07	R-38	-2.84
R-49	-19.82			R-49	-2.92
R-60	-20.12			R-60	-2.97
Slope(DD)	6664.27	Slope(DD)	6047.31	Slope(DD)	1077.39
Curve(DDS)	-100.948	Curve(DDS)	-13.993	Curve(DDS)	-29.916

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-13.22	R-7	-8.07	R-7	-1.93
R-11	-15.33	R-11	-9.22	R-11	-2.23
R-19	-17.23	R-13	-10.55	R-19	-2.61
R-22	-17.90	R-19	-11.21	R-22	-2.61
R-30	-18.81	R-27	-12.36	R-30	-2.76
R-38	-19.35	R-34	-13.07	R-38	-2.84
R-49	-19.82			R-49	-2.92
R-60	-20.12			R-60	-2.97
Slope(DD)	6664.27	Slope(DD)	6047.31	Slope(DD)	1077.39
Curve(DDS)	-100.948	Curve(DDS)	-13.993	Curve(DDS)	-29.916

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-13.22	R-7	-8.07	R-7	-1.93
R-11	-15.33	R-11	-9.22	R-11	-2.23
R-19	-17.23	R-13	-10.55	R-19	-2.61
R-22	-17.90	R-19	-11.21	R-22	-2.61
R-30	-18.81	R-27	-12.36	R-30	-2.76
R-38	-19.35	R-34	-13.07	R-38	-2.84
R-49	-19.82			R-49	-2.92
R-60	-20.12			R-60	-2.97
Slope(DD)	6664.27	Slope(DD)	6047.31	Slope(DD)	1077.39
Curve(DDS)	-100.948	Curve(DDS)	-13.993	Curve(DDS)	-29.916

Base Load = 13.70 MBtu
Typical Load = 8.70 MBtu
Residual Load = 3.26 MBtu

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-12.98	R-7	-5.50
R-11	-15.06	R-11	-6.28
R-19	-16.92	R-13	-7.17
R-22	-17.58	R-19	-7.61
R-30	-18.47	R-27	-8.37
R-38	-19.00	R-34	-8.83
R-49	-19.44		
R-60	-19.73		

Slope(DD)	6477.18	Slope(DD)	5891.16
Curve(DDS)	-89.410	Curve(DDS)	28.534

Delta Component (KBtu)		Delta Component (/ft)	
Slab	(/ft)	Heated Basement	(/ft)
R-0	-12.63	R-0	-10.35
R-5	-13.71	R-5	-12.38
R-10	-14.02	R-10	-12.91
R-15	-14.33	R-15	-13.58
R-20	-14.64	R-20	-14.25
R-25	-14.95	R-25	-14.92
R-30	-15.26	R-30	-15.59
R-35	-15.57	R-35	-16.26
R-40	-15.88	R-40	-16.93
R-45	-16.19	R-45	-17.60
R-50	-16.50	R-50	-18.27
R-55	-16.81	R-55	-18.94
R-60	-17.12	R-60	-19.61

Delta Component (/sf)		Delta Component (/sf)	
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-10.35	R-0	-10.35
R-5	-11.02	R-5	-11.02
R-10	-11.69	R-10	-11.69
R-15	-12.36	R-15	-12.36
R-20	-13.03	R-20	-13.03
R-25	-13.70	R-25	-13.70
R-30	-14.37	R-30	-14.37
R-35	-15.04	R-35	-15.04
R-40	-15.71	R-40	-15.71
R-45	-16.38	R-45	-16.38
R-50	-17.05	R-50	-17.05
R-55	-17.72	R-55	-17.72
R-60	-18.39	R-60	-18.39

Delta Component (/sf)		Delta Component (/sf)	
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00
.0007(.89)	19.78	2-Pane	.00
.0005(.66)	13.55	3-Pane	.00
.0003(.40)	7.78	R-10	.00

Slope(DD)	24.207	Slope(DD)	4938.34
Curve(DDS)	5.782	Curve(DDS)	20.127

Base Load = 81.94 MBtu
 Typical Load = 23.45 MBtu
 Residual Load = 1.25 MBtu

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-1.85	R-7	-1.85
R-11	-2.14	R-11	-2.14
R-19	-2.41	R-13	-2.41
R-22	-2.50	R-19	-2.50
R-30	-2.62	R-27	-2.62
R-38	-2.70	R-34	-2.70
R-49	-2.75		
R-60	-2.79		

Slope(DD)	855.31	Slope(DD)	486.69
Curve(DDS)	-3.111	Curve(DDS)	-13.186

Delta Component (/ft)		Delta Component (/ft)	
Slab	(/ft)	Heated Basement	(/ft)
R-0	-1.26	R-0	-1.26
R-5	-1.20	R-5	-1.20
R-10	-1.15	R-10	-1.15
R-15	-1.10	R-15	-1.10
R-20	-1.05	R-20	-1.05
R-25	-1.00	R-25	-1.00
R-30	-0.95	R-30	-0.95
R-35	-0.90	R-35	-0.90
R-40	-0.85	R-40	-0.85
R-45	-0.80	R-45	-0.80
R-50	-0.75	R-50	-0.75
R-55	-0.70	R-55	-0.70
R-60	-0.65	R-60	-0.65

Delta Component (/sf)		Delta Component (/sf)	
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-1.26	R-0	-1.26
R-5	-1.20	R-5	-1.20
R-10	-1.15	R-10	-1.15
R-15	-1.10	R-15	-1.10
R-20	-1.05	R-20	-1.05
R-25	-1.00	R-25	-1.00
R-30	-0.95	R-30	-0.95
R-35	-0.90	R-35	-0.90
R-40	-0.85	R-40	-0.85
R-45	-0.80	R-45	-0.80
R-50	-0.75	R-50	-0.75
R-55	-0.70	R-55	-0.70
R-60	-0.65	R-60	-0.65

Delta Component (/sf)		Delta Component (/sf)	
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00
.0007(.58)	.67	2-Pane	.00
.0005(.42)	.45	3-Pane	.00
.0003(.25)	.25	R-10	.00

Slope(DD)	.708	Slope(DD)	-245.39
Curve(DDS)	.365	Curve(DDS)	6.928

Base Load = 12.06 MBtu
 Typical Load = 7.68 MBtu
 Residual Load = 2.56 MBtu

Denver CO	WYEC	One Story	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (KBtu)		Delta Component (KBtu)	
						Ceiling	Wall	Ceiling	Wall
						(/sf)	(/sf)	(/sf)	(/sf)
R-0	.00	34.17	.00	31.85	R-0	.00	6.91	.00	.00
R-7	-31.53	13.70	-18.26	15.60	R-7	-6.48	2.70	-1.65	1.50
R-11	-36.57	10.43	-20.86	13.29	R-11	-7.52	2.02	-1.88	1.29
R-19	-41.09	7.49	-24.07	10.43	R-19	-8.45	1.42	-2.24	.97
R-22	-42.85	6.35	-25.66	9.02	R-22	-8.78	1.20	-2.42	.81
R-30	-45.21	4.81	-28.47	6.51	R-30	-9.23	.91	-2.64	.61
R-38	-46.64	3.89	-30.20	4.98	R-38	-9.50	.74	-2.77	.50
R-49	-47.91	3.06			R-49	-9.75	.58		
R-60	-48.73	2.53			R-60	-9.91	.47		
Slope(DD)	7012.62		Slope(DD)	6475.21	Slope(DD)	1315.30		Slope(DD)	619.25
Curve(DDS)	-210.575		Curve(DDS)	-102.898	Curve(DDS)	-25.323		Curve(DDS)	-12.749
						Slab	Heated Basement	Slab	Heated Basement
						(/ft)	(/ft)	(/ft)	(/ft)
R-0	-16.79	54.88	-9.02	101.68	R-0	-3.96	-4.89	-2.70	2.70
R-5 2ft	-22.04	23.25	-14.40	69.28	R-5 2ft	-3.79	-3.87	-3.03	.71
R-5 4ft	-23.56	14.09	-16.43	57.05	R-5 4ft	-3.70	-3.33	-3.03	.71
R-10 2ft	-23.01	17.41	-15.86	60.48	R-10 2ft	-3.75	-3.63	-3.11	.23
R-10 4ft	-25.10	4.82	-18.94	41.93	R-10 4ft	-3.62	-2.84	-3.11	.23
Intercept	-21.627	.000	Intercept	.000	Intercept	-.996		Intercept	.000
Slope(DD)	8533.28		Slope(DD)	4511.61	Slope(DD)	-649.47		Slope(DD)	4.94
Curve(DDS)	-142.963		Curve(DDS)	-49.062	Curve(DDS)	26.830		Curve(DDS)	1.602
						Unheated Basement	Crawl	Unheated Basement	Crawl
						(/sf)	(/sf)	(/sf)	(/sf)
R-0	-9.02	10.96	.00	16.82	R-0	-2.70	.29	.00	2.04
R-11 flr	-24.49	.92	-26.19	-1.19	R-11 flr	-1.21	1.26	.58	2.42
R-19 flr	-28.71	-1.83	-30.67	-3.10	R-19 flr	-.80	1.53	.59	2.43
R-30 flr	-31.43	-3.59	-33.44	-4.90	R-30 flr	-.53	1.70	.61	2.44
R-38 flr			-34.07	-5.31	R-38 flr			.61	2.44
R-49 flr			-35.89	-6.49	R-49 flr			.62	2.45
Intercept	-8.315		Intercept	-9.248	Intercept	2.164		Intercept	2.428
Slope(DD)	6411.00		Slope(DD)	5601.06	Slope(DD)	-630.89		Slope(DD)	26.45
Curve(DDS)	-517.169		Curve(DDS)	-101.000	Curve(DDS)	51.786		Curve(DDS)	-19.770
						Infiltration	Window U-value	Infiltration	Window U-value
						(/sf flr)	(/sf)	(/sf flr)	(/sf)
ELF Ach			ELF Ach		ELF Ach			ELF Ach	
.0007(.75)	.00	15.22	.00	148.09	.0007(.62)	.00	.36	.00	3.40
.0005(.54)	-6.97	10.69	.0005(.45)	70.22	.0005(.45)	-.16	.26	.00	1.89
.0003(.32)	-13.72	6.31	.0003(.27)	44.65	.0003(.27)	-.32	.16	-.40	1.21
			R-10	-24.67				R-10	.42
Slope/.001ELF	20.487		Slope(DD)	6261.38	Slope/.001ELF	.519		Slope(DD)	185.70
Curve/.001ELF	1.786		Curve(DDS)	-24.700	Curve/.001ELF	.000		Curve(DDS)	-2.154
						Base Load =	155.85 MBtu	Base Load =	19.16 MBtu
						Typical Load =	47.79 MBtu	Typical Load =	3.77 MBtu
						Residual Load =	8.23 MBtu	Residual Load =	-3.68 MBtu

Denver CO	WYEC	Mid Town	Prototype	Siding	Series Two	Heating Load			Cooling Load		
						Delta Component			Delta Component		
						Delta Component	Delta Component	Delta Component	Delta Component	Delta Component	Delta Component
						(MBtu)	(KBtu)	(MBtu)	(KBtu)	(MBtu)	(KBtu)
						Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
						(/sf)	(/sf)	(/sf)	(/sf)	(/sf)	(/sf)
R-0	.00	35.41	.00	30.10	R-0	.00	7.13	.00	7.13	.00	.00
R-7	-13.05	13.67	-7.68	13.99	R-7	-2.56	2.87	-2.56	2.87	-2.56	2.87
R-11	-15.13	10.19	-8.77	11.69	R-11	-2.96	2.19	-2.96	2.19	-2.96	2.19
R-19	-17.00	7.08	-10.03	9.04	R-19	-3.33	1.58	-3.33	1.58	-3.33	1.58
R-22	-17.66	5.98	-10.66	7.73	R-22	-3.47	1.34	-3.47	1.34	-3.47	1.34
R-30	-18.55	4.50	-11.68	5.58	R-30	-3.66	1.02	-3.66	1.02	-3.66	1.02
R-38	-19.08	3.61	-12.31	4.26	R-38	-3.78	.83	-3.78	.83	-3.78	.83
R-49	-19.53	2.86			R-49	-3.89	.65	-3.89	.65	-3.89	.65
R-60	-19.82	2.38			R-60	-3.96	.53	-3.96	.53	-3.96	.53
						Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
						Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
						Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement
						(/ft)	(/ft)	(/ft)	(/ft)	(/ft)	(/ft)
R-0	-8.48	40.79	-5.84	106.79	R-0	-1.53	-12.83	-1.53	-12.83	-1.53	-12.83
R-5	-9.69	10.54	-7.67	61.04	R-5	-1.47	-11.33	-1.47	-11.33	-1.47	-11.33
R-5	-9.99	3.04	-8.16	48.79	R-5	-1.44	-10.58	-1.44	-10.58	-1.44	-10.58
R-10	-9.89	5.54	-8.07	51.04	R-10	-1.46	-11.08	-1.46	-11.08	-1.46	-11.08
R-10	-10.27	-3.96	-8.72	34.79	R-10	-1.41	-9.83	-1.41	-9.83	-1.41	-9.83
						Intercept	Intercept	Intercept	Intercept	Intercept	Intercept
						-22.065	.000	-7.045	.000	-7.045	.000
						Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
						5417.96	3517.06	-988.76	-988.76	-988.76	-988.76
						Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
						27.498	-20.629	42.120	42.120	42.120	42.120
						Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl
						(/sf)	(/sf)	(/sf)	(/sf)	(/sf)	(/sf)
R-0	-5.84	7.12	.00	16.85	R-0	-.98	.06	-.98	.06	-.98	.06
R-11	-9.37	1.24	-9.28	1.39	R-11	-.42	.99	-.42	.99	-.42	.99
R-19	-10.53	-.69	-10.83	-1.20	R-19	-.27	1.25	-.27	1.25	-.27	1.25
R-30	-11.27	-1.93	-11.68	-2.62	R-30	-.17	1.41	-.17	1.41	-.17	1.41
R-38			-11.88	-2.95	R-38						
R-49			-12.44	-3.89	R-49						
						Intercept	Intercept	Intercept	Intercept	Intercept	Intercept
						-5.353	-6.236	-592.02	-592.02	-592.02	-592.02
						Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
						4696.30	4572.62	47.515	47.515	47.515	47.515
						Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
						-441.542	-13.628				
						Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value
						(/sf f/r)	(/sf)	(/sf f/r)	(/sf)	(/sf f/r)	(/sf)
						ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach
						.0007(.75)	.00	.0007(.62)	.00	.0007(.62)	.00
						.0005(.55)	-5.11	.0005(.45)	-1.13	.0005(.45)	-1.13
						.0003(.33)	-9.59	.0003(.27)	-.21	.0003(.27)	-.21
						Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)
						13.416	3656.51	-.083	-.083	-.083	-.083
						Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)
						6.563	31.716	.521	.521	.521	.521
						Base Load =	Base Load =	Base Load =	Base Load =	Base Load =	Base Load =
						71.51 MBtu	12.23 MBtu	5.99 MBtu	5.99 MBtu	5.99 MBtu	5.99 MBtu
						Typical Load =	Typical Load =	Typical Load =	Typical Load =	Typical Load =	Typical Load =
						18.73 MBtu	1.47 MBtu	1.47 MBtu	1.47 MBtu	1.47 MBtu	1.47 MBtu
						Residual Load =	Residual Load =	Residual Load =	Residual Load =	Residual Load =	Residual Load =
						7.86 MBtu					

Base Load = 12.23 MBtu
Typical Load = 5.99 MBtu
Residual Load = 1.47 MBtu

Base Load = 71.51 MBtu
Typical Load = 18.73 MBtu
Residual Load = 7.86 MBtu

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-12.72	R-7	-5.20
R-11	-14.75	R-11	-5.94
R-19	-16.57	R-13	-6.77
R-22	-17.19	R-19	-7.17
R-30	-18.01	R-27	-7.81
R-38	-18.51	R-34	-8.20
R-49	-18.89		
R-60	-19.13		

Slope(DD)	5823.89	Slope(DD)	4962.33
Curve(DDS)	-13.371	Curve(DDS)	108.735

Slab		Heated Basement	
	(/ft)		(/ft)
R-0	-9.45	R-0	-7.34
R-5 2ft	-10.46	R-5 4ft	-9.07
R-5 4ft	-10.73	R-5 8ft	-9.53
R-10 2ft	-10.63	R-10 4ft	-9.45
R-10 4ft	-10.98	R-10 8ft	-10.06
Intercept	-9.325	Intercept	.000
Slope(DD)	7042.21	Slope(DD)	4455.78
Curve(DDS)	-29.227	Curve(DDS)	-26.413

Unheated Basement		Crawl	
	(/sf)		(/sf)
R-0	-7.34	R-0	.00
R-11 flr	-10.30	R-11 flr	-9.76
R-19 flr	-11.34	R-19 flr	-11.36
R-30 flr	-12.01	R-30 flr	-12.32
		R-38 flr	-12.55
		R-49 flr	-13.18
Intercept	-4.152	Intercept	-5.438
Slope(DD)	4285.65	Slope(DD)	4935.56
Curve(DDS)	-421.444	Curve(DDS)	-34.022

Infiltration		Window U-value	
ELF Ach	(/sf flr)		(/sf)
.0007(.75)	.00	1-Pane	.00
.0005(.55)	-5.12	2-Pane	-10.42
.0003(.33)	-9.51	3-Pane	-12.95
		R-10	-15.93

Slope/.001ELF	12.250	Slope(DD)	3546.14
Curve/.001ELF	7.552	Curve(DDS)	36.659

Base Load = 67.06 MBtu
 Typical Load = 16.76 MBtu
 Residual Load = 8.15 MBtu

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-2.63	R-7	-.47
R-11	-3.05	R-11	-.54
R-19	-3.43	R-13	-.65
R-22	-3.58	R-19	-.70
R-30	-3.78	R-27	-.77
R-38	-3.89	R-34	-.81
R-49	-4.01		
R-60	-4.08		

Slope(DD)	1544.24	Slope(DD)	686.23
Curve(DDS)	-51.153	Curve(DDS)	-20.484

Slab		Heated Basement	
	(/ft)		(/ft)
R-0	-1.04	R-0	-.78
R-5 2ft	-1.00	R-5 4ft	-.82
R-5 4ft	-.97	R-5 8ft	-.81
R-10 2ft	-.99	R-10 4ft	-.83
R-10 4ft	-.95	R-10 8ft	-.82
Intercept	-1.955	Intercept	.000
Slope(DD)	-987.03	Slope(DD)	-56.17
Curve(DDS)	43.241	Curve(DDS)	2.008

Unheated Basement		Crawl	
	(/sf)		(/sf)
R-0	-.78	R-0	.00
R-11 flr	-.38	R-11 flr	.23
R-19 flr	-.25	R-19 flr	.23
R-30 flr	-.16	R-30 flr	.23
		R-38 flr	.23
		R-49 flr	.23
Intercept	1.447	Intercept	1.701
Slope(DD)	-515.04	Slope(DD)	59.52
Curve(DDS)	47.159	Curve(DDS)	-25.095

Infiltration		Window U-value	
ELF Ach	(/sf flr)		(/sf)
.0007(.62)	.00	1-Pane	.00
.0005(.45)	-.12	2-Pane	-.20
.0003(.27)	-.22	3-Pane	-.26
		R-10	-.34

Slope/.001ELF	.312	Slope(DD)	109.70
Curve/.001ELF	.156	Curve(DDS)	-.451

Base Load = 10.43 MBtu
 Typical Load = 4.70 MBtu
 Residual Load = .17 MBtu

El Paso TX

WYEC

One Story Prototype Siding

Series Two

Heating Load

Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	-14.04	R-7	R-7	-11.43	R-7
R-11	-16.29	R-11	R-11	-13.26	R-11
R-19	-18.30	R-13	R-19	-14.90	R-13
R-22	-19.03	R-19	R-22	-15.50	R-19
R-30	-20.01	R-27	R-30	-16.31	R-27
R-38	-20.60	R-34	R-38	-16.80	R-34
R-49	-21.06		R-49	-17.24	
R-60	-21.36		R-60	-17.52	
Slope(DD)	2762.28	Slope(DD)	Slope(DD)	2374.29	Slope(DD)
Curve(DDS)	-42.219	Curve(DDS)	Curve(DDS)	-52.411	Curve(DDS)
Slab	(/ft)	Heated Basement	Slab	(/ft)	Heated Basement
R-0	-10.98	R-0	R-0	-6.48	R-0
R-5	-12.77	R-5	R-5	-6.66	R-5
R-5	-13.05	R-5	R-5	-6.64	R-5
R-10	-13.08	R-10	R-10	-6.72	R-10
R-10	-13.35	R-10	R-10	-6.73	R-10
Intercept	.000	Intercept	Intercept	.000	Intercept
Slope(DD)	867.86	Slope(DD)	Slope(DD)	249.35	Slope(DD)
Curve(DDS)	111.298	Curve(DDS)	Curve(DDS)	-1.537	Curve(DDS)
Unheated Basement	(/sf)	Crawl	Unheated Basement	(/sf)	Crawl
R-0	-6.58	R-0	R-0	-2.92	R-0
R-11	-11.24	R-11	R-11	-1.93	R-11
R-19	-12.31	R-19	R-19	-1.75	R-19
R-30	-13.00	R-30	R-30	-1.64	R-30
Intercept	-.582	Intercept	Intercept	3.555	Intercept
Slope(DD)	1547.91	Slope(DD)	Slope(DD)	-231.57	Slope(DD)
Curve(DDS)	-99.347	Curve(DDS)	Curve(DDS)	6.782	Curve(DDS)
Infiltration	(/sf flr)	Window U-value	Infiltration	(/sf flr)	Window U-value
ELF Ach			ELF Ach		
.0007(.73)	.00	1-Pane	.0007(.55)	.00	1-Pane
.0005(.52)	-2.82	2-Pane	.0005(.39)	-.61	2-Pane
.0003(.31)	-5.01	3-Pane	.0003(.23)	-1.08	3-Pane
		R-10			R-10
Slope/.001ELF	3.019	Slope(DD)	Slope/.001ELF	.617	Slope(DD)
Curve/.001ELF	5.114	Curve(DDS)	Curve/.001ELF	1.136	Curve(DDS)

Base Load = 62.20 MBtu
Typical Load = 19.70 MBtu
Residual Load = 3.92 MBtu

Base Load = 47.82 MBtu
Typical Load = 22.06 MBtu
Residual Load = 3.99 MBtu

Heating Load

Ceiling		Delta Component (MBtu)	(/sf)	Wall		Delta Component (MBtu)	(/sf)
R-0		.00	15.22	R-0		.00	10.94
R-7		-5.86	5.46	R-7		-3.11	4.42
R-11		-6.79	3.90	R-11		-3.55	3.49
R-19		-7.63	2.50	R-13		-3.98	2.58
R-22		-7.87	2.10	R-19		-4.20	2.13
R-30		-8.19	1.56	R-27		-4.48	1.53
R-38		-8.39	1.24	R-34		-4.66	1.16
R-49		-8.54	.98				
R-60		-8.64	.82				

Slope(DD) 2191.14
Curve(DDS) 63.454

Slab		Heated Basement	
R-0		-4.34	12.97
R-5 2ft		-4.67	4.72
R-5 4ft		-4.71	3.72
R-10 2ft		-4.72	3.47
R-10 4ft		-4.77	2.22
Intercept		.000	
Slope(DD)		582.64	
Curve(DDS)		89.073	

Unheated Basement		Crawl	
R-0		-3.09	2.95
R-11 flr		-4.05	1.35
R-19 flr		-4.31	.91
R-30 flr		-4.48	.63
Intercept		-.120	
Slope(DD)		1019.15	
Curve(DDS)		-82.083	

Infiltration		Window U-value	
ELF Ach		(/sf flr)	(/sf)
.0007(.73)		.00	37.71
.0005(.52)		1-Pane	.00
.0003(.31)		2-Pane	-3.54
		3-Pane	-4.27
		R-10	-6.12

Slope(.001ELF) .583
Curve/.001ELF 5.938

Base Load = 27.37 MBtu
Typical Load = 9.67 MBtu
Residual Load = 5.14 MBtu

Cooling Load

Ceiling		Delta Component (MBtu)	(/sf)	Wall		Delta Component (MBtu)	(/sf)
R-0		.00	12.26	R-0		.00	5.61
R-7		-4.54	4.70	R-7		-1.39	2.69
R-11		-5.26	3.49	R-11		-1.59	2.27
R-19		-5.91	2.41	R-13		-1.84	1.74
R-22		-6.14	2.03	R-19		-1.97	1.48
R-30		-6.44	1.53	R-27		-2.16	1.09
R-38		-6.62	1.22	R-34		-2.27	.85
R-49		-6.77	.97				
R-60		-6.87	.81				

Slope(DD) 2200.23
Curve(DDS) -22.402

Slab		Heated Basement	
R-0		-2.51	.03
R-5 2ft		-2.55	-.97
R-5 4ft		-2.53	-.47
R-10 2ft		-2.55	-.97
R-10 4ft		-2.54	-.72
Intercept		.000	
Slope(DD)		-362.38	
Curve(DDS)		39.486	

Unheated Basement		Crawl	
R-0		-1.08	2.39
R-11 flr		-.66	3.09
R-19 flr		-.56	3.25
R-30 flr		-.50	3.35
Intercept		3.622	
Slope(DD)		-362.18	
Curve(DDS)		23.585	

Infiltration		Window U-value	
ELF Ach		(/sf flr)	(/sf)
.0007(.54)		.00	.85
.0005(.38)		1-Pane	.00
.0003(.23)		2-Pane	-.30
		3-Pane	-.35
		R-10	-.40

Slope(.001ELF) .625
Curve/.001ELF .833

Base Load = 30.16 MBtu
Typical Load = 19.72 MBtu
Residual Load = 8.71 MBtu

El Paso TX	WYEC	MApartment Prototype Siding	Series Two	
		Heating Load	Cooling Load	
		Delta Component (MBtu)	Delta Component (MBtu)	
		Ceiling (/sf)	Ceiling (/sf)	
R-0	.00	15.57	.00	
R-7	-6.03	5.52	-4.79	
R-11	-6.99	3.91	-5.56	
R-13	-7.86	2.47	-6.24	
R-19	-8.10	2.07	-6.48	
R-22	-8.42	1.53	-6.81	
R-30	-8.62	1.20	-7.00	
R-38	-8.76	.97	-7.17	
R-49	-8.85	.82	-7.27	
R-60				
Slope(DD)	2138.27	Slope(DD)	2364.95	
Curve(DDS)	82.161	Curve(DDS)	-29.417	
		Slab (/ft)	Heated Basement (/ft)	
R-0	-4.85	12.87	R-0	-1.90
R-5 2ft	-5.15	3.04	R-5 2ft	-1.95
R-5 4ft	-5.17	2.21	R-5 4ft	-1.94
R-10 2ft	-5.18	2.04	R-10 2ft	-1.95
R-10 4ft	-5.21	.87	R-10 4ft	-1.94
Intercept	.000		Intercept	.000
Slope(DD)	-95.13	Slope(DD)	-462.00	
Curve(DDS)	161.248	Curve(DDS)	55.842	
		Unheated Basement (/sf)	Crawl (/sf)	
R-0	-3.91	2.21	R-0	-91
R-11 flr	-4.73	.85	R-11 flr	-42
R-19 flr	-4.88	.59	R-19 flr	-33
R-30 flr	-4.99	.42	R-30 flr	-27
Intercept	-.001		Intercept	2.971
Slope(DD)	552.55	Slope(DD)	-298.53	
Curve(DDS)	-23.643	Curve(DDS)	9.255	
		Infiltration (/sf flr)	Window U-value (/sf)	
ELF Ach			ELF Ach	
.0007(.73)	.00	3.02	.0007(.55)	.00
.0005(.52)	-1.88	1.46	.0005(.33)	-.38
.0003(.31)	-3.09	.45	.0003(.23)	-.66
		Slope(DD)	Slope(DD)	
Curve(DDS)	7.031	Curve(DDS)	.885	
		Base Load =	Base Load =	
		Typical Load =	Typical Load =	
		Residual Load =	Residual Load =	

Fort Worth TX WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-13.46	R-7	-7.66	R-7	-8.30	R-7	-2.91
R-11	-15.61	R-11	-8.75	R-11	-9.63	R-11	-3.32
R-19	-17.54	R-13	-10.05	R-19	-10.82	R-13	-3.83
R-22	-18.27	R-19	-10.69	R-22	-11.26	R-19	-4.08
R-30	-19.24	R-27	-11.74	R-30	-11.85	R-27	-4.53
R-38	-19.83	R-34	-12.38	R-38	-12.21	R-34	-4.80
R-49	-20.32			R-49	-12.50		
R-60	-20.64			R-60	-12.69		
Slope(DD)	2824.03	Slope(DD)	2396.43	Slope(DD)	1697.12	Slope(DD)	1023.75
Curve(DDS)	-65.673	Curve(DDS)	.245	Curve(DDS)	-34.094	Curve(DDS)	-15.484
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-11.49	R-0	-8.04	R-0	-7.71	R-0	-3.19
R-5 2ft	-13.74	R-5 4ft	-11.23	R-5 2ft	-8.19	R-5 4ft	-4.05
R-5 4ft	-14.27	R-5 8ft	-12.10	R-5 4ft	-8.26	R-5 8ft	-4.35
R-10 2ft	-14.11	R-10 4ft	-12.00	R-10 2ft	-8.30	R-10 4ft	-4.39
R-10 4ft	-14.77	R-10 8ft	-13.17	R-10 4ft	-8.35	R-10 8ft	-4.70
Intercept	.000	Intercept	1.182	Intercept	.000	Intercept	17.017
Slope(DD)	1985.32	Slope(DD)	1545.79	Slope(DD)	64.48	Slope(DD)	549.90
Curve(DDS)	31.749	Curve(DDS)	-9.541	Curve(DDS)	27.894	Curve(DDS)	-4.600
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-8.04	R-0	.00	R-0	-3.19	R-0	.00
R-11 flr	-13.15	R-11 flr	-12.00	R-11 flr	-2.28	R-11 flr	-1.03
R-19 flr	-14.44	R-19 flr	-13.88	R-19 flr	-2.17	R-19 flr	-1.34
R-30 flr	-15.27	R-30 flr	-14.92	R-30 flr	-2.10	R-30 flr	-1.61
Intercept	-967	Intercept	.993	Intercept	4.213	Intercept	4.122
Slope(DD)	1917.75	Slope(DD)	2093.27	Slope(DD)	-112.48	Slope(DD)	695.95
Curve(DDS)	-141.391	Curve(DDS)	23.912	Curve(DDS)	-8.549	Curve(DDS)	-83.996
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.0007(.71)	1-Pane	.00	ELF Ach	.0007(.63)	1-Pane	.00
.0005(.53)	-3.50	2-Pane	-6.30	.0005(.45)	-2.06	2-Pane	-1.12
.0003(.32)	-6.66	3-Pane	-7.88	.0003(.27)	-4.25	3-Pane	-1.38
		R-10	-9.74			R-10	-1.69
Slope/.001ELF	8.052	Slope(DD)	1773.22	Slope/.001ELF	7.954	Slope(DD)	277.31
Curve/.001ELF	2.760	Curve(DDS)	14.554	Curve/.001ELF	-1.055	Curve(DDS)	3.581
Base Load = 67.92 MBtu		Base Load = 51.72 MBtu		Base Load = 27.33 MBtu		Base Load = 4.65 MBtu	
Typical Load = 24.39 MBtu		Typical Load = 27.33 MBtu		Typical Load = 27.33 MBtu		Typical Load = 27.33 MBtu	
Residual Load = .28 MBtu		Residual Load = .28 MBtu		Residual Load = .28 MBtu		Residual Load = .28 MBtu	

Fort Worth TX		WYEC	Mid Town	Prototype Siding	Series Two		
			Heating Load		Cooling Load		
Delta Component (MBtu)		(/sf)	Wall	Delta Component (MBtu)	(/sf)	Wall	
R-0	.00	15.19	R-0	.00	12.15	R-0	.00
R-7	-5.75	5.61	R-7	-3.33	5.16	R-7	-3.19
R-11	-6.67	4.08	R-11	-3.80	4.17	R-11	-3.70
R-19	-7.49	2.70	R-13	-4.29	3.13	R-19	-4.16
R-22	-7.75	2.27	R-19	-4.54	2.62	R-22	-4.32
R-30	-8.10	1.69	R-27	-4.89	1.89	R-30	-4.53
R-38	-8.31	1.34	R-34	-5.10	1.44	R-38	-4.66
R-49	-8.47	1.07				R-49	-4.78
R-60	-8.57	.90				R-60	-4.85
Slope(DD)		2411.07	Slope(DD)		1744.31	Slope(DD)	
Curve(DDS)		25.415	Curve(DDS)		95.568	Curve(DDS)	
Slab		(/ft)	Heated Basement		(/ft)	Heated Basement	
R-0	-4.92	20.50	R-0	-3.87	46.75	R-0	-3.06
R-5 2ft	-5.39	8.75	R-5 4ft	-4.79	23.75	R-5 2ft	-3.19
R-5 4ft	-5.49	6.25	R-5 8ft	-4.98	19.00	R-5 4ft	-3.18
R-10 2ft	-5.46	7.00	R-10 4ft	-4.96	19.50	R-10 2ft	-3.20
R-10 4ft	-5.57	4.25	R-10 8ft	-5.19	13.75	R-10 4ft	-3.19
Intercept	.000		Intercept	2.817		Intercept	.000
Slope(DD)	984.03		Slope(DD)	969.51		Slope(DD)	-705.14
Curve(DDS)	69.823		Curve(DDS)	3.203		Curve(DDS)	73.738
Unheated Basement		(/sf)	Crawl		(/sf)	Crawl	
R-0	-3.87	3.12	R-0	.00	9.57	R-0	-1.30
R-11 flr	-4.99	1.25	R-11 flr	-4.21	2.55	R-11 flr	-.74
R-19 flr	-5.31	.72	R-19 flr	-4.84	1.50	R-19 flr	-.65
R-30 flr	-5.51	.38	R-30 flr	-5.16	.97	R-30 flr	-.59
			R-38 flr	-5.23	.85	R-38 flr	-.31
			R-49 flr	-5.44	.50	R-49 flr	-.38
Intercept	-.531		Intercept	-.374		Intercept	.00
Slope(DD)	1243.53		Slope(DD)	1645.63		Slope(DD)	-.05
Curve(DDS)	-103.791		Curve(DDS)	57.145		Curve(DDS)	-18.49
Infiltration		(/sf flr)	Window U-value		(/sf)	Window U-value	
ELF Ach			ELF Ach			ELF Ach	
.0007(.74)	.00	5.32	1-Pane	.00	46.58	.0007(.63)	.00
.0005(.52)	-2.50	3.24	2-Pane	-4.51	15.26	.0005(.45)	-1.44
.0003(.31)	-4.46	1.61	3-Pane	-5.36	9.33	.0003(.27)	-3.01
			R-10	-6.37	2.35		2.17
Slope/.001ELF		3.666	Slope(DD)		923.23	Slope(DD)	
Curve/.001ELF		5.625	Curve(DDS)		31.868	Curve(DDS)	
Base Load =		31.33 MBtu	Base Load =		34.23 MBtu	Base Load =	
Typical Load =		12.15 MBtu	Typical Load =		24.08 MBtu	Typical Load =	
Residual Load =		2.78 MBtu	Residual Load =		10.02 MBtu	Residual Load =	

Fort Worth TX	WYEC	M Apartment Prototype Siding		Series Two		Cooling Load	
		Heating Load					
		Delta Component (MBtu)		Delta Component (MBtu)		Delta Component (MBtu)	
		Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
		(/sf)	(/sf)	(/sf)	(/sf)	(/sf)	(/sf)
R-0	.00	15.49	.00	12.15	.00	8.82	.00
R-7	-5.91	5.63	-2.26	5.02	-3.34	3.26	-0.82
R-11	-6.86	4.06	-2.58	4.01	-3.87	2.37	-0.93
R-19	-7.71	2.64	-2.90	2.99	-4.35	1.57	-1.03
R-22	-7.96	2.21	-3.06	2.48	-4.50	1.32	-1.07
R-30	-8.31	1.64	-3.28	1.79	-4.70	.99	-1.18
R-38	-8.52	1.29	-3.42	1.36	-4.82	.79	-1.25
R-49	-8.67	1.04			-4.92	.62	
R-60	-8.76	.89			-4.98	.52	
Slope(DD)	2328.59		Slope(DD)	1616.69		Slope(DD)	677.12
Curve(DDS)	47.814		Curve(DDS)	119.397		Curve(DDS)	28.602
		Heated Basement		Heated Basement		Heated Basement	
		(/ft)	(/ft)	(/ft)	(/ft)	(/ft)	(/ft)
R-0	-5.36	22.17	R-0	-4.57	48.50	R-0	-1.19
R-5 2ft	-5.75	9.34	R-5 4ft	-5.40	21.00	R-5 4ft	-1.44
R-5 4ft	-5.83	6.67	R-5 8ft	-5.56	15.67	R-5 8ft	-1.50
R-10 2ft	-5.80	7.50	R-10 4ft	-5.54	16.17	R-10 4ft	-1.52
R-10 4ft	-5.89	4.50	R-10 8ft	-5.73	9.84	R-10 8ft	-1.57
Intercept	.000		Intercept	-1.695		Intercept	27.735
Slope(DD)	1029.58		Slope(DD)	986.53		Slope(DD)	492.54
Curve(DDS)	78.501		Curve(DDS)	6.687		Curve(DDS)	-1.008
		Unheated Basement		Unheated Basement		Unheated Basement	
		(/sf)	(/sf)	(/sf)	(/sf)	(/sf)	(/sf)
R-0	-4.57	2.43	R-0	.00	10.04	R-0	.00
R-11 flr	-5.48	.92	R-11 flr	-4.47	2.59	R-11 flr	.07
R-19 flr	-5.73	.49	R-19 flr	-5.11	1.53	R-19 flr	-.06
R-30 flr	-5.90	.21	R-30 flr	-5.45	.96	R-30 flr	-.16
			R-38 flr	-5.53	.83	R-38 flr	-.18
			R-49 flr	-5.76	.45	R-49 flr	-.25
Intercept	-.540		Intercept	-.426		Intercept	3.540
Slope(DD)	1019.15		Slope(DD)	1687.19		Slope(DD)	688.99
Curve(DDS)	-85.977		Curve(DDS)	69.095		Curve(DDS)	-106.426
		Window U-value		Window U-value		Window U-value	
		(/sf flr)	(/sf)	(/sf flr)	(/sf)	(/sf flr)	(/sf)
ELF Ach				ELF Ach		ELF Ach	
.0007(.74)	.00	5.10	1-Pane	.00	45.38	1-Pane	.00
.0005(.52)	-2.51	3.01	2-Pane	-4.53	13.92	2-Pane	-.63
.0003(.32)	-4.40	1.43	3-Pane	-5.32	8.43	3-Pane	-.69
			R-10	-6.25	1.97	R-10	-.76
Slope/.001ELF	2.875		Slope(DD)	753.69		Slope(DD)	-24.49
Curve/.001ELF	6.302		Curve(DDS)	36.559		Curve(DDS)	8.535
		Base Load =	29.74 MBtu	Base Load =		32.41 MBtu	
		Typical Load =	11.20 MBtu	Typical Load =		22.98 MBtu	
		Residual Load =	3.10 MBtu	Residual Load =		9.25 MBtu	

Fresno CA	TMY	One Story	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (KBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Ceiling (/sf)	
						Wall		Wall	
						R-0		R-0	
						R-7		R-7	
						R-11		R-11	
						R-13		R-13	
						R-19		R-19	
						R-22		R-22	
						R-30		R-30	
						R-38		R-38	
						R-49		R-49	
						R-60		R-60	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Slab		Heated Basement	
						R-0		R-0	
						R-5 4ft		R-5 4ft	
						R-5 8ft		R-5 8ft	
						R-10 4ft		R-10 4ft	
						R-10 8ft		R-10 8ft	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Unheated Basement (/sf)		Crawl (/sf)	
						R-0		R-0	
						R-11 flr		R-11 flr	
						R-19 flr		R-19 flr	
						R-30 flr		R-30 flr	
						R-38 flr		R-38 flr	
						R-49 flr		R-49 flr	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Infiltration (/sf flr)		Window U-value (/sf)	
						ELF Ach		1-Pane	
						.0007(.58)		2-Pane	
						.0005(.42)		3-Pane	
						.0003(.26)		R-10	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Base Load =		Base Load =	
						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	

						Heating Load		Cooling Load	
						Delta Component (KBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Ceiling (/sf)	
						Wall		Wall	
						R-0		R-0	
						R-7		R-7	
						R-11		R-11	
						R-13		R-13	
						R-19		R-19	
						R-22		R-22	
						R-30		R-30	
						R-38		R-38	
						R-49		R-49	
						R-60		R-60	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Slab		Heated Basement	
						R-0		R-0	
						R-5 4ft		R-5 4ft	
						R-5 8ft		R-5 8ft	
						R-10 4ft		R-10 4ft	
						R-10 8ft		R-10 8ft	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Unheated Basement (/sf)		Crawl (/sf)	
						R-0		R-0	
						R-11 flr		R-11 flr	
						R-19 flr		R-19 flr	
						R-30 flr		R-30 flr	
						R-38 flr		R-38 flr	
						R-49 flr		R-49 flr	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Infiltration (/sf flr)		Window U-value (/sf)	
						ELF Ach		1-Pane	
						.0007(.58)		2-Pane	
						.0005(.42)		3-Pane	
						.0003(.26)		R-10	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Base Load =		Base Load =	
						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	

Fresno CA	TMY	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (MBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Wall (/sf)	
R-0	.00	17.99	.00	13.57	R-0	.00	13.64	R-0	.00
R-7	-6.78	6.68	-3.67	5.88	R-7	-4.93	5.43	R-7	-1.71
R-11	-7.87	4.88	-4.19	4.78	R-11	-5.71	4.12	R-11	-1.95
R-19	-8.84	3.25	-4.75	3.60	R-19	-6.42	2.94	R-13	-2.28
R-22	-9.15	2.74	-5.03	3.02	R-22	-6.69	2.49	R-19	-2.45
R-30	-9.57	2.04	-5.43	2.18	R-30	-7.05	1.89	R-27	-2.69
R-38	-9.82	1.62	-5.67	1.67	R-38	-7.27	1.52	R-34	-2.84
R-49	-10.01	1.30			R-49	-7.46	1.20		
R-60	-10.14	1.09			R-60	-7.59	.99		
						Slope(DD)	2913.86	Slope(DD)	1450.82
						Curve(DDS)	20.244	Curve(DDS)	-24.262
						Slab (/ft)		Heated Basement (/ft)	
R-0	-4.56	24.90	-3.34	55.40	R-0	-2.80	-2.93	R-0	-1.33
R-5 2ft	-5.11	11.15	-4.34	30.40	R-5 2ft	-2.77	-2.18	R-5 4ft	-1.47
R-5 4ft	-5.22	8.40	-4.58	24.40	R-5 4ft	-2.75	-1.68	R-5 8ft	-1.52
R-10 2ft	-5.19	9.15	-4.55	25.15	R-10 2ft	-2.77	-2.18	R-10 4ft	-1.54
R-10 4ft	-5.33	5.65	-4.82	18.40	R-10 4ft	-2.74	-1.43	R-10 8ft	-1.54
Intercept	.000		Intercept	4.699	Intercept	.000		Intercept	26.937
Slope(DD)	1375.51		Slope(DD)	1201.77	Slope(DD)	-461.42		Slope(DD)	109.09
Curve(DDS)	56.810		Curve(DDS)	.906	Curve(DDS)	18.109		Curve(DDS)	1.456
						Unheated Basement (/sf)		Crawl (/sf)	
R-0	-3.34	3.69	.00	9.26	R-0	-1.33	2.25	R-0	.00
R-11 flr	-4.76	1.33	-4.30	2.09	R-11 flr	-.87	3.02	R-11 flr	-.16
R-19 flr	-5.18	.63	-4.95	1.01	R-19 flr	-.79	3.15	R-19 flr	-.28
R-30 flr	-5.45	.18	-5.28	.45	R-30 flr	-.74	3.24	R-30 flr	-.35
			R-38 flr	-5.36				R-38 flr	-.37
			R-49 flr	-5.58				R-49 flr	-.42
Intercept	-1.046		Intercept	-.953	Intercept	3.440		Intercept	3.512
Slope(DD)	1688.03		Slope(DD)	1729.85	Slope(DD)	-262.03		Slope(DD)	521.15
Curve(DDS)	-145.055		Curve(DDS)	51.079	Curve(DDS)	6.006		Curve(DDS)	-65.130
						Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	4.83	.00	45.56	ELF Ach	.00	1.23	1-Pane	.00
.0007(.58)	-2.32	2.90	-4.29	15.77	.0007(.49)	-.46	.85	2-Pane	-.57
.0005(.44)	-4.11	1.41	-5.16	9.70	.0005(.35)	-.89	.49	3-Pane	-.72
.0003(.27)			-6.19	2.57	.0003(.21)			R-10	-.90
						Slope/.001ELF	1.542	Slope(DD)	227.87
						Curve/.001ELF	.313	Curve(DDS)	1.114
						Base Load =		Base Load =	
						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	

Base Load = 29.29 MBtu
Typical Load = 17.69 MBtu
Residual Load = 5.53 MBtu

Fresno CA		TMY	MApartment Prototype Siding		Series Two		Cooling Load			
		Heating Load								
				Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		
		Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	
		R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0	
		R-7	R-7	R-7	R-7	R-7	R-7	R-7	R-7	
		R-11	R-11	R-11	R-11	R-11	R-11	R-11	R-11	
		R-19	R-13	R-19	R-13	R-19	R-13	R-19	R-13	
		R-22	R-19	R-22	R-19	R-22	R-19	R-22	R-19	
		R-30	R-27	R-30	R-27	R-30	R-27	R-30	R-27	
		R-38	R-34	R-38	R-34	R-38	R-34	R-38	R-34	
		R-49		R-49		R-49		R-49		
		R-60		R-60		R-60		R-60		
		Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	
		Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	
		Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement	
		R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0	
		R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	
		R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	
		R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	
		R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	
		Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	
		Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	
		Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	
		Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl	
		R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0	
		R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	
		R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	
		R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	
		R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr	
		R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr	
		Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	
		Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	
		Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	
		Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value	
		ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	
		.0007(.58)	.0007(.45)	.0007(.45)	.0007(.45)	.0007(.45)	.0007(.45)	.0007(.45)	.0007(.45)	
		.0005(.44)	.0005(.32)	.0005(.32)	.0005(.32)	.0005(.32)	.0005(.32)	.0005(.32)	.0005(.32)	
		.0003(.27)	.0003(.19)	.0003(.19)	.0003(.19)	.0003(.19)	.0003(.19)	.0003(.19)	.0003(.19)	
		Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)	
		Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)	
		2.000	815.74	1.604	319.95	1.604	319.95	1.604	319.95	
		6.354	31.639	.208	-.180	.208	-.180	.208	-.180	
		Base Load =	30.60 MBtu	Base Load =	26.44 MBtu	Base Load =	26.44 MBtu	Base Load =	26.44 MBtu	
		Typical Load =	10.80 MBtu	Typical Load =	15.71 MBtu	Typical Load =	15.71 MBtu	Typical Load =	15.71 MBtu	
		Residual Load =	3.52 MBtu	Residual Load =	3.78 MBtu	Residual Load =	3.78 MBtu	Residual Load =	3.78 MBtu	

Great Falls MT WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-39.89	R-7	-23.66	R-7	-3.45	R-7	-80
R-11	-46.26	R-11	-27.03	R-11	-4.00	R-11	-91
R-19	-51.98	R-13	-31.20	R-19	-4.50	R-13	-108
R-22	-54.21	R-19	-33.26	R-22	-4.68	R-19	-117
R-30	-57.19	R-27	-37.03	R-30	-4.93	R-27	-128
R-38	-58.99	R-34	-39.34	R-38	-5.08	R-34	-135
R-49	-60.61			R-49	-5.21		
R-60	-61.65			R-60	-5.29		
Slope(DD)	8872.89	Slope(DD)	8628.80	Slope(DD)	717.58	Slope(DD)	310.67
Curve(DDS)	-266.684	Curve(DDS)	-166.309	Curve(DDS)	-15.876	Curve(DDS)	-7.708
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-24.94	R-0	-12.69	R-0	-2.50	R-0	-1.89
R-5 2ft	-31.48	R-5 4ft	-19.45	R-5 2ft	-2.36	R-5 4ft	-2.10
R-5 4ft	-33.48	R-5 8ft	-22.27	R-5 4ft	-2.29	R-5 8ft	-2.08
R-10 2ft	-32.71	R-10 4ft	-21.28	R-10 2ft	-2.33	R-10 4ft	-2.14
R-10 4ft	-35.52	R-10 8ft	-25.61	R-10 4ft	-2.23	R-10 8ft	-2.10
Intercept	-40.277	Intercept	.000	Intercept	.242	Intercept	.000
Slope(DD)	16142.20	Slope(DD)	7255.03	Slope(DD)	-626.66	Slope(DD)	-62.33
Curve(DDS)	-548.839	Curve(DDS)	-97.914	Curve(DDS)	32.652	Curve(DDS)	2.480
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-12.69	R-0	.00	R-0	-1.89	R-0	.00
R-11 flr	-33.50	R-11 flr	-36.96	R-11 flr	-.81	R-11 flr	.47
R-19 flr	-39.57	R-19 flr	-43.18	R-19 flr	-.50	R-19 flr	.50
R-30 flr	-43.47	R-30 flr	-47.10	R-30 flr	-.30	R-30 flr	.51
		R-38 flr	-48.00			R-38 flr	.51
		R-49 flr	-50.58			R-49 flr	.52
Intercept	-12.387	Intercept	-13.960	Intercept	1.482	Intercept	1.662
Slope(DD)	9359.54	Slope(DD)	7822.59	Slope(DD)	-477.14	Slope(DD)	5.55
Curve(DDS)	-804.004	Curve(DDS)	-131.083	Curve(DDS)	40.459	Curve(DDS)	-13.815
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.98)	27.12	2-Pane	19.71	.0007(.58)	.18	2-Pane	.09
.0005(.72)	19.25	3-Pane	26.14	.0005(.41)	.13	3-Pane	.15
.0003(.43)	11.48	R-10	-33.71	.0003(.25)	.08	R-10	.21
Slope/.001ELF	37.890	Slope(DD)	8502.72	Slope/.001ELF	.260	Slope(DD)	90.00
Curve/.001ELF	1.218	Curve(DDS)	-31.905	Curve/.001ELF	.000	Curve(DDS)	-1.487
Base Load = 224.05 MBtu		Base Load = 10.22 MBtu		Base Load = 10.22 MBtu		Base Load = 10.22 MBtu	
Typical Load = 80.52 MBtu		Typical Load = 1.70 MBtu		Typical Load = 1.70 MBtu		Typical Load = 1.70 MBtu	
Residual Load = 13.26 MBtu		Residual Load = -2.07 MBtu		Residual Load = -2.07 MBtu		Residual Load = -2.07 MBtu	

Great Falls MT WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	45.31	R-0	.00	R-0	.00
R-7	-16.59	R-7	17.66	R-7	-1.45	R-7	-.39
R-11	-19.24	R-11	13.24	R-11	-1.68	R-11	-.44
R-19	-21.62	R-13	9.28	R-13	-1.89	R-13	-.53
R-22	-22.48	R-19	7.85	R-19	-1.97	R-19	-.58
R-30	-23.63	R-27	5.93	R-27	-2.08	R-27	-.64
R-38	-24.32	R-34	4.78	R-34	-2.14	R-34	-.68
R-49	-24.93	R-49	3.76	R-49	-2.21		
R-60	-25.32	R-60	3.11	R-60	-2.26		
Slope(DD)	8563.47	Slope(DD)	7769.70	Slope(DD)	844.38	Slope(DD)	422.36
Curve(DDS)	-155.390	Curve(DDS)	-37.520	Curve(DDS)	-27.311	Curve(DDS)	-17.790
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-12.39	R-0	59.48	R-0	-1.01	R-0	-.71
R-5	-13.98	R-5	19.73	R-5	2ft	R-5	4ft
R-10	-14.43	R-10	8.48	R-10	4ft	R-10	8ft
R-15	-14.26	R-15	12.73	R-15	2ft	R-15	4ft
R-20	-14.88	R-20	2.77	R-20	4ft	R-20	8ft
Intercept	-35.643	Intercept	0.00	Intercept	-4.271	Intercept	0.00
Slope(DD)	14116.76	Slope(DD)	7245.78	Slope(DD)	-664.20	Slope(DD)	-158.62
Curve(DDS)	-392.290	Curve(DDS)	-78.097	Curve(DDS)	23.581	Curve(DDS)	3.802
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-8.41	R-0	10.60	R-0	-.71	R-0	.00
R-11	-13.26	R-11	2.52	R-11	flr	R-11	flr
R-19	-15.01	R-19	-.41	R-19	flr	R-19	flr
R-30	-16.14	R-30	-2.28	R-30	flr	R-30	flr
Intercept	-7.544	Intercept	-9.704	Intercept	1.241	Intercept	1.589
Slope(DD)	7254.65	Slope(DD)	7269.95	Slope(DD)	-424.40	Slope(DD)	-20.05
Curve(DDS)	-724.787	Curve(DDS)	-112.569	Curve(DDS)	33.457	Curve(DDS)	-13.619
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value	
ELF Ach	.00	ELF Ach	.00	ELF Ach	.00	ELF Ach	.00
.0007(***)	24.67	.0007(***)	184.69	.0007(***)	.07	.0007(***)	.07
.0005(.74)	17.07	.0005(.74)	82.81	.0005(.41)	-.06	.0005(.41)	-.06
.0003(.44)	9.91	.0003(.44)	52.40	.0003(.25)	-.09	.0003(.25)	-.09
Slope/.001ELF	31.374	Slope(DD)	7079.01	Slope/.001ELF	-.125	Slope(DD)	18.44
Curve/.001ELF	5.521	Curve(DDS)	-3.154	Curve/.001ELF	.313	Curve(DDS)	-.263
Base Load = 109.31 MBtu		Base Load = 6.98 MBtu		Base Load = 3.40 MBtu		Base Load = 1.21 MBtu	
Typical Load = 36.24 MBtu		Typical Load = 3.40 MBtu		Typical Load = 1.21 MBtu		Typical Load = 1.21 MBtu	
Residual Load = 5.24 MBtu		Residual Load = 5.24 MBtu		Residual Load = 5.24 MBtu		Residual Load = 5.24 MBtu	

Great Falls MT		WYEC	MApartment Prototype Siding		Series Two		Heating Load		Cooling Load		
Delta Component (MBtu)		(/sf)	Delta Component (MBtu)		(/sf)	Delta Component (MBtu)		(/sf)	Delta Component (MBtu)		(/sf)
Ceiling			Wall			Ceiling			Wall		
R-0		.00	R-0		.00	R-0		.00	R-0		.00
R-7		16.20	R-7		-6.92	R-7		-1.46	R-7		-1.71
R-11		18.79	R-11		-7.90	R-11		-1.69	R-11		-1.32
R-19		21.11	R-13		-9.02	R-19		-1.90	R-13		-1.32
R-22		21.93	R-19		-9.58	R-22		-1.99	R-19		-1.32
R-30		23.02	R-27		-10.54	R-30		-2.11	R-27		-1.32
R-38		23.69	R-34		-11.13	R-38		-2.18	R-34		-1.32
R-49		24.24				R-49		-2.24			
R-60		24.60				R-60		-2.28			
Slope(DD)		8029.77	Slope(DD)		7502.64	Slope(DD)		923.28	Slope(DD)		416.08
Curve(DDS)		-104.329	Curve(DDS)		20.867	Curve(DDS)		-37.920	Curve(DDS)		-18.894
Slab			Heated Basement			Slab			Heated Basement		
R-0		-13.55	R-0		-10.39	R-0		-62	R-0		-51
R-5 2ft		14.84	R-5 4ft		-12.60	R-5 2ft		-57	R-5 4ft		-53
R-5 4ft		15.22	R-5 8ft		-13.26	R-5 4ft		-56	R-5 8ft		-51
R-10 2ft		15.07	R-10 4ft		-13.11	R-10 2ft		-56	R-10 4ft		-52
R-10 4ft		15.59	R-10 8ft		-14.04	R-10 4ft		-54	R-10 8ft		-51
Intercept		-21.027	Intercept		.000	Intercept		-312	Intercept		.000
Slope(DD)		15780.18	Slope(DD)		8319.41	Slope(DD)		-917.53	Slope(DD)		-177.72
Curve(DDS)		-461.812	Curve(DDS)		-84.751	Curve(DDS)		46.476	Curve(DDS)		3.829
Unheated Basement			Crawl			Unheated Basement			Crawl		
R-0		-10.39	R-0		.00	R-0		-51	R-0		.00
R-11 flr		14.30	R-11 flr		-13.94	R-11 flr		-23	R-11 flr		.19
R-19 flr		15.83	R-19 flr		-16.23	R-19 flr		-14	R-19 flr		.20
R-30 flr		16.82	R-30 flr		-17.67	R-30 flr		-09	R-30 flr		.20
Intercept		-5.910	Intercept		-18.95	Intercept		.913	Intercept		.20
Slope(DD)		6423.47	Slope(DD)		-8.386	Slope(DD)		-370.41	Slope(DD)		1.101
Curve(DDS)		-668.967	Curve(DDS)		7294.79	Curve(DDS)		34.714	Curve(DDS)		36.87
Infiltration			Window U-value			Infiltration			Window U-value		
ELF Ach			1-Pane		.00	ELF Ach		.00	1-Pane		.00
.0007(***)		.00	2-Pane		-14.89	.0007(.58)		.18	2-Pane		.06
.0005(.74)		-9.12	3-Pane		-19.16	.0005(.41)		.13	3-Pane		.32
.0003(.44)		-17.63	R-10		-24.17	.0003(.25)		.08	R-10		.11
Slope/.001ELF		30.437	Slope(DD)		6730.81	Slope/.001ELF		.292	Slope(DD)		47.72
Curve/.001ELF		6.303	Curve(DDS)		8.706	Curve/.001ELF		-.052	Curve(DDS)		-.505
Base Load =		103.21 MBtu	Base Load =		5.81 MBtu	Base Load =		5.81 MBtu	Base Load =		5.81 MBtu
Typical Load =		33.35 MBtu	Typical Load =		2.62 MBtu	Typical Load =		2.62 MBtu	Typical Load =		2.62 MBtu
Residual Load =		5.56 MBtu	Residual Load =		.31 MBtu	Residual Load =		.31 MBtu	Residual Load =		.31 MBtu

Honolulu HI

TMY

One Story

Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu)			Delta Component (KBtu)			Delta Component (KBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	.35	R-0	.00	.08	R-0	.00	8.18	R-0	.00	1.96
R-7	-.42	.08	R-7	-.07	.02	R-7	-8.30	2.79	R-7	-1.96	.21
R-11	-.49	.03	R-11	-.08	.01	R-11	-9.62	1.93	R-11	-2.24	-.04
R-19	-.55	.01	R-13	-.09	.00	R-19	-10.81	1.16	R-13	-2.40	-.18
R-22	-.55	.01	R-19	-.09	.00	R-22	-11.12	.96	R-19	-2.48	-.25
R-30	-.55	.01	R-27	-.09	.00	R-30	-11.53	.69	R-27	-2.39	-.17
R-38	-.55	.01	R-34	-.09	.00	R-38	-11.78	.53	R-34	-2.34	-.13
R-49	-.55	.01				R-49	-11.91	.44			
R-60	-.55	.01				R-60	-12.00	.38			
Slope(DD)	-20.15		Slope(DD)	-3.50		Slope(DD)	959.56		Slope(DD)	-299.19	
Curve(DDS)	13.383		Curve(DDS)	3.427		Curve(DDS)	70.790		Curve(DDS)	123.337	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-.09	.03	R-0	-.09	.03	R-0	-6.12	-.05	R-0	-.63	33.02
R-5	-.08	.03	R-5	-.10	.03	R-5	-6.13	-.11	R-5	.26	38.38
R-5	-.08	.03	R-5	-.10	.03	R-5	-6.14	-.17	R-5	.41	39.29
R-10	-.08	.03	R-10	-.10	.03	R-10	-6.15	-.23	R-10	.48	39.71
R-10	-.08	.03	R-10	-.10	.03	R-10	-6.13	-.11	R-10	.77	41.46
Intercept	.000		Intercept	-.078		Intercept	.000		Intercept	.45.601	
Slope(DD)	13.87		Slope(DD)	-2.99		Slope(DD)	-64.53		Slope(DD)	-479.10	
Curve(DDS)	-1.816		Curve(DDS)	.113		Curve(DDS)	6.203		Curve(DDS)	3.683	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.09	.00	R-0	.00	.05	R-0	-.63	3.56	R-0	.00	3.97
R-11	-.10	.01	R-11	-.06	.02	R-11	.21	4.11	R-11	1.28	4.80
R-19	-.10	.01	R-19	-.06	.02	R-19	.11	4.04	R-19	1.03	4.64
R-30	-.10	.01	R-30	-.06	.02	R-30	.04	3.99	R-30	.92	4.57
Intercept	-.010		R-38	-.06	.02	Intercept	3.810		R-38	.90	4.55
Slope(DD)	-1.06		R-49	-.06	.02	Slope(DD)	285.94		R-49	.83	4.51
Curve(DDS)	.432		Intercept	-.019		Curve(DDS)	-65.286		Intercept	4.222	
			Slope(DD)	-6.00		Slope(DD)	523.16		Slope(DD)	523.16	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach	.00	.01	1-Pane	.00	.20	ELF Ach	.00	4.47	1-Pane	.00	-23.54
.0007(.52)	.00	.01	2-Pane	-.04	-.02	.0007(.68)	.00	4.47	2-Pane	1.28	-16.61
.0005(.37)	-.02	.02	3-Pane	-.04	-.02	.0005(.48)	-1.69	3.37	3-Pane	2.34	-10.86
.0003(.22)	-.02	.02	R-10	-.04	-.02	.0003(.29)	-3.60	2.13	R-10	3.59	-4.11
Slope/.001ELF	-.130		Slope(DD)	-8.68		Slope/.001ELF	7.630		Slope(DD)	-1830.71	
Curve/.001ELF	.162		Curve(DDS)	.615		Curve/.001ELF	-1.786		Curve(DDS)	35.576	
Base Load =			Base Load =			Base Load =			Base Load =		
Typical Load =			Typical Load =			Typical Load =			Typical Load =		
Residual Load =			Residual Load =			Residual Load =			Residual Load =		

Series Two

Mid Town Prototype Siding

TMY

Honolulu HI

Heating Load

Cooling Load

Delta Component (MBtu)			Delta Component (MBtu)			Delta Component (MBtu)			Delta Component (MBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	.21	R-0	.00	.06	R-0	.00	5.96	R-0	.00	.55
R-7	-.10	.05	R-7	-.03	.00	R-7	-2.71	1.44	R-7	-.55	-.61
R-11	-.12	.02	R-11	-.03	-.01	R-11	-3.14	.72	R-11	-.63	-.77
R-19	-.13	-.00	R-13	-.03	-.01	R-19	-3.53	.07	R-13	-.65	-.82
R-22	-.13	-.00	R-19	-.03	-.01	R-22	-3.54	.05	R-19	-.66	-.84
R-30	-.13	-.00	R-27	-.03	-.01	R-30	-3.56	.02	R-27	-.54	-.58
R-38	-.13	-.00	R-34	-.03	-.01	R-38	-3.57	.01	R-34	-.46	-.42
R-49	-.13	-.00				R-49	-3.59	-.02			
R-60	-.13	-.00				R-60	-3.60	-.04			
Slope(DD)	-12.23		Slope(DD)	-11.68		Slope(DD)	-139.31		Slope(DD)	-723.21	
Curve(DDS)	8.119		Curve(DDS)	4.101		Curve(DDS)	192.980		Curve(DDS)	153.501	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-.03	-.00	R-0	-.03	-.00	R-0	-2.41	-4.91	R-0	.00	55.34
R-5	-.03	-.00	R-5	-.03	-.00	R-5	-2.42	-5.16	R-5	.26	61.84
R-10	-.03	-.00	R-10	-.03	-.00	R-10	-2.42	-5.16	R-10	.27	62.09
R-10	-.03	-.00	R-10	-.03	-.00	R-10	-2.42	-5.16	R-10	.30	62.84
Intercept	.000		Intercept	-.000		Intercept	-2.36	-3.66	R-10	.39	65.09
Slope(DD)	-.00		Slope(DD)	-.00		Slope(DD)	-1718.74		Intercept	69.472	
Curve(DDS)	.000		Curve(DDS)	.000		Curve(DDS)	125.667		Slope(DD)	-526.05	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.03	-.00	R-0	.00	.05	R-0	.00	3.69	R-0	-.42	2.99
R-11	-.03	-.00	R-11	-.02	.02	R-11	.45	4.44	R-11	.69	4.84
R-19	-.03	-.00	R-19	-.02	.02	R-19	.49	4.51	R-19	.66	4.79
R-30	-.03	-.00	R-30	-.02	.02	R-30	.52	4.56	R-30	.66	4.79
			R-38	-.02	.02				R-38	.66	4.79
			R-49	-.02	.02				R-49	.66	4.79
Intercept	-.000		Intercept	.019		Intercept	4.635		Intercept	4.580	
Slope(DD)	.00		Slope(DD)	-5.13		Slope(DD)	-86.18		Slope(DD)	364.02	
Curve(DDS)	.000		Curve(DDS)	2.165		Curve(DDS)	-19.181		Curve(DDS)	-131.463	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach	.0007(.52)	.00	1-Pane	.00	.06	ELF Ach	.0007(.68)	.00	1-Pane	.00	-27.61
.0005(.37)	-.01	-.02	2-Pane	-.01	-.01	.0005(.48)	-.94	2.43	2-Pane	1.44	-17.61
.0003(.22)	-.01	-.02	3-Pane	-.01	-.01	.0003(.28)	-2.01	1.54	3-Pane	2.33	-11.45
			R-10	-.01	-.01				R-10	3.37	-4.20
Slope/.001ELF	-.083		Slope(DD)	-2.78		Slope/.001ELF	5.542		Slope(DD)	-1859.78	
Curve/.001ELF	.104		Curve(DDS)	.197		Curve/.001ELF	-1.354		Curve(DDS)	30.837	
Base Load = .21 MBtu			Base Load = 45.93 MBtu			Base Load = 45.93 MBtu			Base Load = 45.93 MBtu		
Typical Load = .01 MBtu			Typical Load = 38.41 MBtu			Typical Load = 38.41 MBtu			Typical Load = 38.41 MBtu		
Residual Load = .04 MBtu			Residual Load = 24.01 MBtu			Residual Load = 24.01 MBtu			Residual Load = 24.01 MBtu		

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	9.41	R-0	.00	R-0	8.53
R-7	-8.93	R-7	3.61	R-7	-4.70	R-7	-8.17
R-11	-10.35	R-11	2.69	R-11	-5.37	R-11	-9.48
R-19	-11.63	R-13	1.85	R-13	-6.13	R-19	-10.65
R-22	-12.08	R-19	1.56	R-19	-6.50	R-22	-11.04
R-30	-12.69	R-27	1.17	R-27	-7.06	R-30	-11.57
R-38	-13.05	R-34	.93	R-34	-7.41	R-38	-11.89
R-49	-13.34		.75			R-49	-12.14
R-60	-13.52		.63			R-60	-12.30
							.54

Slope(DD) 1693.93
Curve(DDS) -18.093

Slope(DD) 1264.52
Curve(DDS) 27.966

Slab (/ft)

Heated Basement (/ft)

R-0	-6.18	13.75
R-5 2ft	-7.38	6.52
R-5 4ft	-7.73	4.41
R-10 2ft	-7.73	4.41
R-10 4ft	-8.10	2.18
Intercept	.000	
Slope(DD)	676.79	
Curve(DDS)	35.529	

Unheated Basement (/sf)

R-0	-4.74	2.42
R-11 flr	-7.39	.70
R-19 flr	-7.99	.31
R-30 flr	-8.37	.06
Intercept	-.581	
Slope(DD)	856.10	
Curve(DDS)	-52.939	

Infiltration (/sf flr)	Window U-value (/sf)
ELF Ach	
.0007(.66)	.00
.0005(.45)	-1.95
.0003(.29)	-3.58
1-Pane	3.52
2-Pane	2.26
3-Pane	1.20
R-10	-4.76
Slope(DD)	424.74
Curve(DDS)	22.480

Slope(DD) 3.214
Curve(DDS) 2.598

Base Load = 38.79 MBtu
Typical Load = 12.46 MBtu
Residual Load = 1.16 MBtu

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)	
R-0	.00	R-0	8.53	R-0	.00
R-7	-8.17	R-7	3.22	R-7	-2.48
R-11	-9.48	R-11	2.38	R-11	-2.83
R-19	-10.65	R-13	1.61	R-13	-3.23
R-22	-11.04	R-19	1.36	R-19	-3.43
R-30	-11.57	R-30	1.02	R-27	-3.70
R-38	-11.89	R-38	.81	R-34	-3.86
R-49	-12.14	R-49	.65		
R-60	-12.30	R-60	.54		

Slope(DD) 1460.70
Curve(DDS) -3.716

Slope(DD) 613.32
Curve(DDS) 22.178

Slab (/ft)

Heated Basement (/ft)

R-0	-6.80	-1.59
R-5 2ft	-6.95	-1.50
R-5 4ft	-6.90	-1.20
R-10 2ft	-7.00	-1.80
R-10 4ft	-6.86	-1.96
Intercept	.000	
Slope(DD)	-449.29	
Curve(DDS)	32.544	

Unheated Basement (/sf)

R-0	-2.43	2.77
R-11 flr	-.86	3.79
R-19 flr	-.62	3.95
R-30 flr	-.46	4.05
Intercept	4.287	
Slope(DD)	-297.79	
Curve(DDS)	.527	

Infiltration (/sf flr)	Window U-value (/sf)
ELF Ach	
.0007(.58)	.00
.0005(.41)	-1.58
.0003(.24)	-3.30
1-Pane	3.99
2-Pane	2.96
3-Pane	1.85
R-10	.52
Slope(DD)	6.494
Curve(DDS)	-1.136

Slope(DD) -519.79
Curve(DDS) 14.009

Base Load = 48.97 MBtu
Typical Load = 26.96 MBtu
Residual Load = 6.95 MBtu

Jacksonville FL TMY			Mid Town Prototype Siding			Series Two		
			Heating Load			Cooling Load		
Delta Component (MBtu)			Delta Component (KBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)		
R-0	.00	9.39	R-0	.00	6.56	R-0	.00	7.85
R-7	-3.65	3.31	R-7	-1.94	2.48	R-7	-2.97	2.90
R-11	-4.24	2.33	R-11	-2.22	1.90	R-11	-3.44	2.11
R-19	-4.76	1.46	R-13	-2.47	1.38	R-19	-3.87	1.40
R-22	-4.90	1.22	R-19	-2.59	1.12	R-22	-4.00	1.18
R-30	-5.09	.90	R-27	-2.74	.80	R-30	-4.18	.88
R-38	-5.21	.71	R-34	-2.84	.60	R-38	-4.29	.70
R-49	-5.30	.57				R-49	-4.38	.56
R-60	-5.35	.48				R-60	-4.43	.46
Slope(DD) 1255.72			Slope(DD) 665.57			Slope(DD) 1247.82		
Curve(DDS) 55.438			Curve(DDS) 102.919			Curve(DDS) 12.794		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)		
R-0	-2.59	7.79	R-0	-2.19	17.79	R-0	-2.53	-5.25
R-5	-2.81	2.29	R-5	-2.68	5.54	R-5	-2.56	-6.00
R-10	-2.85	1.29	R-5	-2.76	3.54	R-5	-2.51	-4.75
R-10	-2.85	1.29	R-10	-2.74	4.04	R-10	-2.53	-5.25
R-10	-2.89	.29	R-10	-2.82	2.04	R-10	-2.45	-3.25
Intercept	.000	.000	Intercept	-2.82	.037	Intercept	.000	.000
Slope(DD)	-39.88	85.31	Slope(DD)	-2.82	85.31	Slope(DD)	-1376.81	-24.77
Curve(DDS)	54.376	8.571	Curve(DDS)	-2.82	8.571	Curve(DDS)	77.020	.581
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)		
R-0	-2.19	1.19	R-0	.00	4.84	R-0	-.66	2.77
R-11	-2.73	.29	R-11	-2.23	1.12	R-11	.01	3.88
R-19	-2.85	.09	R-19	-2.49	.69	R-19	.11	4.05
R-30	-2.92	-.03	R-30	-2.62	.47	R-30	.17	4.15
Intercept	-.346	-.017	R-38	-2.65	.42	Intercept	4.384	4.339
Slope(DD)	418.89	550.11	R-49	-2.74	.28	Slope(DD)	-294.32	567.02
Curve(DDS)	-23.437	77.306	Intercept	-2.74	.017	Curve(DDS)	-4.113	-128.557
Infiltration (/sf flr) Window U-value			Infiltration (/sf flr) Window U-value			Infiltration (/sf flr) Window U-value		
ELF Ach			ELF Ach			ELF Ach		
.0007(.64)	.00	1.98	1-Pane	.00	22.18	.0007(.57)	.00	3.33
.0005(.48)	-1.33	.87	2-Pane	-2.23	6.69	.0005(.41)	-1.13	2.39
.0003(.29)	-2.14	.20	3-Pane	-2.61	4.04	.0003(.25)	-2.27	1.44
Slope/.001ELF	-.959	351.44	R-10	-3.06	.93	Intercept	4.833	4.833
Curve/.001ELF	5.417	18.510	Slope(DD)	351.44		Slope(DD)	4.833	-984.69
Base Load = 16.85 MBtu			Base Load = 33.62 MBtu			Base Load = 33.62 MBtu		
Typical Load = 5.73 MBtu			Typical Load = 25.03 MBtu			Typical Load = 25.03 MBtu		
Residual Load = 3.11 MBtu			Residual Load = 13.27 MBtu			Residual Load = 13.27 MBtu		

Jacksonville FL TMY MApartment Prototype Siding Series Two									
Heating Load					Cooling Load				
Delta Component (MBtu)			Delta Component (KBtu)		Delta Component (MBtu)			Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)		Ceiling	(/sf)	Wall	(/sf)	
R-0	.00	R-0	.00	6.29	R-0	.00	R-0	.00	7.87
R-7	-3.77	R-7	-1.30	2.21	R-7	-3.10	R-7	-2.70	2.70
R-11	-4.37	R-11	-1.48	1.62	R-11	-3.60	R-11	1.88	1.88
R-19	-4.91	R-13	-1.63	1.14	R-19	-4.04	R-13	1.14	1.14
R-22	-5.04	R-19	-1.71	.90	R-22	-4.14	R-19	.96	.96
R-30	-5.22	R-27	-1.79	.63	R-30	-4.29	R-27	.73	.73
R-38	-5.32	R-34	-1.85	.47	R-38	-4.37	R-34	.59	.59
R-49	-5.41				R-49	-4.46		.44	.44
R-60	-5.46				R-60	-4.51		.35	.35
Slope(DD)			1123.01		Slope(DD)			988.76	
Curve(DDS)			81.603		Curve(DDS)			60.525	
Slab			(/ft)		Slab			(/ft)	
Heated Basement			(/ft)		Heated Basement			(/ft)	
R-0	-2.84	R-0	-2.57	17.76	R-0	-1.83	R-0	4.98	4.98
R-5 2ft	-3.03	R-5 4ft	-2.99	3.76	R-5 2ft	-1.85	R-5 4ft	3.98	3.98
R-5 4ft	-3.07	R-5 8ft	-3.06	1.43	R-5 4ft	-1.84	R-5 8ft	4.48	4.48
R-10 2ft	-3.07	R-10 4ft	-3.06	1.60	R-10 2ft	-1.85	R-10 4ft	3.98	3.98
R-10 4ft	-3.10	R-10 8ft	-3.10	.26	R-10 4ft	-1.91	R-10 8ft	2.14	2.14
Intercept	.000	Intercept	-.780		Intercept	.000	Intercept	54.442	54.442
Slope(DD)	-115.81	Slope(DD)	-56.79		Slope(DD)	989.74	Slope(DD)	-143.59	-143.59
Curve(DDS)	67.062	Curve(DDS)	12.537		Curve(DDS)	-47.883	Curve(DDS)	2.241	2.241
Unheated Basement			(/sf)		Unheated Basement			(/sf)	
Crawl			(/sf)		Crawl			(/sf)	
R-0	-2.57	R-0	.00	5.18	R-0	-.40	R-0	2.62	2.62
R-11 flr	-3.01	R-11 flr	-2.41	1.16	R-11 flr	.22	R-11 flr	.83	.83
R-19 flr	-3.11	R-19 flr	-2.71	.66	R-19 flr	.34	R-19 flr	.81	.81
R-30 flr	-3.16	R-30 flr	-2.83	.47	R-30 flr	.42	R-30 flr	.85	.85
		R-38 flr	-2.85	.42			R-38 flr	.86	.86
		R-49 flr	-2.93	.29			R-49 flr	.90	.90
Intercept	-.342	Intercept	-.047		Intercept	4.314	Intercept	4.668	4.668
Slope(DD)	326.97	Slope(DD)	568.38		Slope(DD)	-425.57	Slope(DD)	100.59	100.59
Curve(DDS)	-16.984	Curve(DDS)	87.970		Curve(DDS)	18.402	Curve(DDS)	-71.964	-71.964
Infiltration			(/sf flr) Window U-value		Infiltration			(/sf flr) Window U-value	
ELF Ach			(/sf)		ELF Ach			(/sf)	
.0007(.64)			.00	21.24	.0007(.57)			.00	11.99
.0005(.48)			-1.32	5.89	.0005(.41)			-1.09	2.54
.0003(.29)			-2.09	3.52	.0003(.24)			-2.25	1.57
				.72					
Slope/.001ELF			-1.313		Slope/.001ELF			5.479	
Curve/.001ELF			5.677		Curve/.001ELF			-.781	
Base Load =			15.94 MBtu		Base Load =			31.35 MBtu	
Typical Load =			5.20 MBtu		Typical Load =			23.68 MBtu	
Residual Load =			3.33 MBtu		Residual Load =			11.85 MBtu	

Juneau AK	TMY	One Story Prototype Siding	Series Two	Cooling Load
		Heating Load		
Delta Component (MBtu)		Delta Component (MBtu)	Delta Component (MBtu)	Delta Component (Kbtu)
Ceiling (/sf)	Wall (/sf)	Delta Component (MBtu)	Ceiling (/sf)	Wall (/sf)
R-0 .00 49.32	R-0 .00 48.11	R-0 .00 .05	R-0 .00 .05	R-0 .00 .00
R-7 -45.32 19.89	R-7 -27.15 23.95	R-7 -.05 .02	R-7 -.05 .02	R-7 .00 .00
R-11 -52.56 15.19	R-11 -31.02 20.51	R-11 -.06 .01	R-11 -.06 .01	R-11 .00 .00
R-19 -59.06 10.97	R-13 -35.81 16.24	R-19 -.07 .01	R-19 -.07 .01	R-13 .00 .00
R-22 -61.63 9.30	R-19 -38.19 14.13	R-22 -.07 .01	R-22 -.07 .01	R-19 .00 .00
R-30 -65.06 7.07	R-27 -42.64 10.16	R-30 -.07 .01	R-30 -.07 .01	R-27 .00 .00
R-38 -67.14 5.72	R-34 -45.38 7.73	R-38 -.07 .01	R-38 -.07 .01	R-34 .00 .00
R-49 -69.03 4.49		R-49 -.08 .00	R-49 -.08 .00	
R-60 -70.25 3.70		R-60 -.08 .00	R-60 -.08 .00	
Slope(DD) 10298.72	Slope(DD) 10168.56	Slope(DD) 6.60	Slope(DD) 6.60	Slope(DD) .00
Curve(DDS) -334.001	Curve(DDS) -227.541	Curve(DDS) .375	Curve(DDS) .375	Curve(DDS) .000
Slab (/ft)		Slab (/ft)	Slab (/ft)	Heated Basement (/ft)
R-0 -23.37 122.39	R-0 -14.50 175.83	R-0 -.03 -.01	R-0 -.03 -.01	R-0 .00 .00
R-5 2ft -33.15 63.48	R-5 4ft -23.04 124.38	R-5 -.02 -.01	R-5 -.02 -.01	R-5 4ft -.01 -.01
R-5 4ft -36.61 42.64	R-5 8ft -26.81 101.67	R-5 -.02 -.01	R-5 -.02 -.01	R-5 8ft -.01 -.01
R-10 2ft -34.90 52.94	R-10 4ft -25.39 110.23	R-10 -.02 -.01	R-10 -.02 -.01	R-10 4ft -.01 -.01
R-10 4ft -39.60 24.62	R-10 8ft -31.15 75.53	R-10 -.01 -.00	R-10 -.01 -.00	R-10 8ft .00 .00
Intercept -33.684	Intercept .000	Intercept -.070	Intercept -.070	Intercept .000
Slope(DD) 16956.09	Slope(DD) 7627.98	Slope(DD) -39.84	Slope(DD) -39.84	Slope(DD) -14.46
Curve(DDS) -338.654	Curve(DDS) -81.964	Curve(DDS) 1.684	Curve(DDS) 1.684	Curve(DDS) .239
Unheated Basement (/sf)		Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)
R-0 -14.50 18.95	R-0 .00 28.37	R-0 -.01 -.02	R-0 -.01 -.02	R-0 .00 .00
R-11 flr -40.28 2.21	R-11 flr -42.28 .91	R-11 .00 .00	R-11 .00 .00	R-11 flr .01 .01
R-19 flr -47.37 -2.39	R-19 flr -49.68 -3.89	R-19 .00 .00	R-19 .00 .00	R-19 flr .01 .01
R-30 flr -51.92 -5.35	R-30 flr -54.40 -8.96	R-30 .00 .00	R-30 .00 .00	R-30 flr .01 .01
Intercept -13.278	Intercept -14.325	Intercept -.014	Intercept -.014	R-38 flr .00 .00
Slope(DD) 10770.33	Slope(DD) 9545.62	Slope(DD) 1.06	Slope(DD) 1.06	R-49 flr .00 .00
Curve(DDS) -874.605	Curve(DDS) -237.908	Curve(DDS) -.432	Curve(DDS) -.432	Intercept .00 .00
Infiltration (/sf flr) Window U-value (/sf)		Infiltration (/sf flr) Window U-value (/sf)	Infiltration (/sf flr) Window U-value (/sf)	Infiltration (/sf flr) Window U-value (/sf)
ELF Ach .0007(.77)	ELF Ach .0007(.58)	ELF Ach .0007(.58)	ELF Ach .0007(.58)	ELF Ach .0007(.58)
.0005(.56) -12.46 20.11	1-Pane -21.18 111.96	.0005(.42) .00 .00	.0005(.42) .00 .00	1-Pane .00 .00
.0003(.33) -24.88 12.05	2-Pane -28.67 71.45	.0003(.25) .00 .00	.0003(.25) .00 .00	2-Pane .00 .00
	3-Pane -37.47 23.81			3-Pane .00 .00
	R-10 -27.47 23.81			R-10 .00 .00
Slope/.001ELF 40.064	Slope(DD) 10273.97	Slope/.001ELF .000	Slope(DD) 10273.97	Slope(DD) .00 .00
Curve/.001ELF .325	Curve(DDS) -64.083	Curve/.001ELF .000	Curve(DDS) -64.083	Curve(DDS) .000
Base Load = 255.36 MBtu	Base Load = 255.36 MBtu	Base Load = .10 MBtu	Base Load = .10 MBtu	Base Load = .10 MBtu
Typical Load = 93.35 MBtu	Typical Load = 93.35 MBtu	Typical Load = .02 MBtu	Typical Load = .02 MBtu	Typical Load = .02 MBtu
Residual Load = 9.92 MBtu	Residual Load = 9.92 MBtu	Residual Load = .00 MBtu	Residual Load = .00 MBtu	Residual Load = .00 MBtu

Juneau AK	TMY	Mid Town	Prototype	Siding	Series Two	Heating Load				Cooling Load			
						Delta Component (MBtu)	Delta Component (/sf)	Wall	Ceiling	Delta Component (MBtu)	Delta Component (/sf)	Wall	Delta Component (MBtu)
								R-0	R-0			R-0	
								R-7	R-7			R-7	
								R-11	R-11			R-11	
								R-13	R-13			R-13	
								R-19	R-19			R-19	
								R-22	R-22			R-22	
								R-30	R-30			R-30	
								R-38	R-38			R-38	
								R-49	R-49			R-49	
								R-60	R-60			R-60	
								Slope(DD)	Slope(DD)			Slope(DD)	
								Curve(DDS)	Curve(DDS)			Curve(DDS)	
								Slab	Slab			Heated Basement	
								R-0	R-0			R-0	
								R-5 2ft	R-5 2ft			R-5 4ft	
								R-5 4ft	R-5 4ft			R-5 8ft	
								R-10 2ft	R-10 2ft			R-10 4ft	
								R-10 4ft	R-10 4ft			R-10 8ft	
								Intercept	Intercept			Intercept	
								Slope(DD)	Slope(DD)			Slope(DD)	
								Curve(DDS)	Curve(DDS)			Curve(DDS)	
								Unheated Basement	Unheated Basement			Crawl	
								R-0	R-0			R-0	
								R-11 flr	R-11 flr			R-11 flr	
								R-19 flr	R-19 flr			R-19 flr	
								R-30 flr	R-30 flr			R-30 flr	
								R-38 flr	R-38 flr			R-38 flr	
								R-49 flr	R-49 flr			R-49 flr	
								Intercept	Intercept			Intercept	
								Slope(DD)	Slope(DD)			Slope(DD)	
								Curve(DDS)	Curve(DDS)			Curve(DDS)	
								Infiltration	Infiltration			Window U-value	
								ELF Ach	ELF Ach			1-Pane	
								.0007(.78)	.0007(.58)			2-Pane	
								.0005(.57)	.0005(.42)			3-Pane	
								.0003(.35)	.0003(.25)			R-10	
								Slope/.001ELF	Slope/.001ELF			Slope(DD)	
								Curve/.001ELF	Curve/.001ELF			Curve(DDS)	
								Base Load =	Base Load =			.08 MBtu	
								Typical Load =	Typical Load =			.04 MBtu	
								Residual Load =	Residual Load =			.02 MBtu	

Juneau AK	TMY	MApartment Prototype Siding	Series Two	Cooling Load		
				Heating Load		
Delta Component (MBtu)		Delta Component (MBtu)		Delta Component (MBtu)		Delta Component (KBtu)
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	(/sf)
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	.00
R-7 -18.80	R-7 -8.06	R-7 -.03	R-7 .03	R-7 -.03	R-7 .03	.03
R-11 -21.80	R-11 -9.21	R-11 -.04	R-11 .02	R-11 -.04	R-11 .02	.03
R-19 -24.49	R-13 -10.52	R-19 -.04	R-13 .01	R-19 -.04	R-13 .01	.03
R-22 -25.46	R-19 -11.18	R-22 -.04	R-19 .01	R-22 -.04	R-19 .01	.03
R-30 -26.75	R-27 -12.32	R-30 -.04	R-27 .01	R-30 -.04	R-27 .01	.02
R-38 -27.53	R-34 -13.02	R-38 -.05	R-34 .01	R-38 -.05	R-34 .01	.01
R-49 -28.19		R-49 -.05		R-49 -.05		
R-60 -28.62		R-60 -.05		R-60 -.05		
Slope(DD) 9531.35	Slope(DD) 8968.45	Slope(DD) 11.51	Slope(DD) 20.54	Slope(DD) 11.51	Slope(DD) 20.54	
Curve(DDS) -151.495	Curve(DDS) -6.980	Curve(DDS) .341	Curve(DDS) -2.854	Curve(DDS) .341	Curve(DDS) -2.854	
Slab (/ft)		Slab (/ft)		Heated Basement (/ft)		(/ft)
R-0	R-0	R-0	R-0	R-0	R-0	
R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	
R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	
R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	
R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	
Intercept -1.880	Intercept .000	Intercept .00	Intercept .00	Intercept .00	Intercept .00	
Slope(DD) 18297.85	Slope(DD) 8705.21	Slope(DD) 33.82	Slope(DD) .000	Slope(DD) 33.82	Slope(DD) .000	
Curve(DDS) -339.012	Curve(DDS) -66.109	Curve(DDS) -3.358	Curve(DDS) .000	Curve(DDS) -3.358	Curve(DDS) .000	
Unheated Basement (/sf)		Unheated Basement (/sf)		Crawl (/sf)		(/sf)
R-0	R-0	R-0	R-0	R-0	R-0	
R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	
R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	
R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	
Intercept -5.930	Intercept -8.174	Intercept -.011	Intercept -.00	Intercept -.011	Intercept -.00	
Slope(DD) 7247.64	Slope(DD) 8553.98	Slope(DD) 16.24	Slope(DD) 14.94	Slope(DD) 16.24	Slope(DD) 14.94	
Curve(DDS) -714.192	Curve(DDS) -127.477	Curve(DDS) -2.745	Curve(DDS) -2.615	Curve(DDS) -2.745	Curve(DDS) -2.615	
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Window U-value (/sf)		(/sf)
ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	
.0007(.78)	.0007(.58)	.0007(.58)	.0007(.58)	.0007(.58)	.0007(.58)	
.0005(.57)	.0005(.42)	.0005(.42)	.0005(.42)	.0005(.42)	.0005(.42)	
.0003(.35)	.0003(.25)	.0003(.25)	.0003(.25)	.0003(.25)	.0003(.25)	
Slope/.001ELF 321.583	Slope(DD) 7976.22	Slope/.001ELF -.063	Slope(DD) 10.32	Slope/.001ELF -.063	Slope(DD) 10.32	
Curve/.001ELF 5.834	Curve(DDS) -5.533	Curve/.001ELF .052	Curve(DDS) -.208	Curve/.001ELF .052	Curve(DDS) -.208	
Base Load = 116.30 MBtu		Base Load = .08 MBtu		Base Load = .08 MBtu		
Typical Load = 36.97 MBtu		Typical Load = .02 MBtu		Typical Load = .02 MBtu		
Residual Load = 1.31 MBtu		Residual Load = -.00 MBtu		Residual Load = -.00 MBtu		

Series Two

One Story Prototype Siding

Kansas City MO WYEC

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-25.66	R-7	-14.80	R-7	-7.53	R-7	-2.52
R-11	-29.76	R-11	-16.91	R-11	-8.73	R-11	-2.88
R-19	-33.44	R-13	-19.49	R-19	-9.81	R-13	-3.37
R-22	-34.86	R-19	-20.77	R-22	-10.24	R-19	-3.62
R-30	-36.76	R-27	-23.10	R-30	-10.81	R-27	-4.06
R-38	-37.91	R-34	-24.53	R-38	-11.16	R-34	-4.33
R-49	-38.93			R-49	-11.48		
R-60	-39.59			R-60	-11.69		
Slope(DD)	5632.19	Slope(DD)	5311.20	Slope(DD)	1732.35	Slope(DD)	1065.41
Curve(DDS)	-160.727	Curve(DDS)	-92.473	Curve(DDS)	-58.591	Curve(DDS)	-38.959
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-15.06	R-0	-7.75	R-0	-8.07	R-0	-4.86
R-5 2ft	-19.21	R-5 4ft	-12.20	R-5 2ft	-8.28	R-5 4ft	-6.24
R-5 4ft	-20.41	R-5 8ft	-13.82	R-5 4ft	-8.33	R-5 8ft	-6.44
R-10 2ft	-19.97	R-10 4ft	-13.36	R-10 2ft	-8.27	R-10 4ft	-6.64
R-10 4ft	-21.64	R-10 8ft	-15.88	R-10 4ft	-1.950	R-10 8ft	-6.94
Intercept	-21.898	Intercept	.000	Intercept	-1.950	Intercept	.000
Slope(DD)	6612.03	Slope(DD)	3556.31	Slope(DD)	-394.88	Slope(DD)	493.43
Curve(DDS)	-108.571	Curve(DDS)	-37.170	Curve(DDS)	37.454	Curve(DDS)	-1.278
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-7.75	R-0	.00	R-0	-4.86	R-0	.00
R-11 flr	-20.71	R-11 flr	-21.84	R-11 flr	-1.80	R-11 flr	.95
R-19 flr	-24.28	R-19 flr	-25.61	R-19 flr	-.93	R-19 flr	.94
R-30 flr	-26.58	R-30 flr	-27.96	R-30 flr	-.37	R-30 flr	1.05
Intercept	-7.307	Intercept	-7.895	Intercept	5.802	R-38 flr	1.07
Slope(DD)	5435.76	Slope(DD)	4764.07	Slope(DD)	-1334.50	R-49 flr	1.14
Curve(DDS)	-442.821	Curve(DDS)	-98.069	Curve(DDS)	112.073	Intercept	5.772
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.76)	13.74	2-Pane	-12.06	.0007(.60)	2.40	2-Pane	.69
.0005(.54)	9.73	3-Pane	-16.09	.0005(.43)	1.70	3-Pane	-2.42
.0003(.33)	5.79	R-10	-20.83	.0003(.26)	1.01	R-10	-1.24
Slope/.001ELF	19.058	Slope(DD)	5388.58	Slope/.001ELF	3.312	Slope(DD)	352.33
Curve/.001ELF	.812	Curve(DDS)	-24.396	Curve/.001ELF	.162	Curve(DDS)	-2.549
Base Load = 132.09 MBtu		Base Load = 35.83 MBtu		Base Load = 13.04 MBtu		Base Load = 35.83 MBtu	
Typical Load = 42.98 MBtu		Typical Load = 13.04 MBtu		Typical Load = 13.04 MBtu		Typical Load = 13.04 MBtu	
Residual Load = 6.32 MBtu		Residual Load = 6.32 MBtu		Residual Load = -3.64 MBtu		Residual Load = -3.64 MBtu	

Kansas City M0 WVEC Mid Town Prototype Siding Series Two				Cooling Load			
Heating Load							
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-10.61	R-7	-6.33	R-7	-2.91	R-7	-1.02
R-11	-12.31	R-11	-7.23	R-11	-3.37	R-11	-1.17
R-13	-13.83	R-13	-8.27	R-13	-3.79	R-13	-1.35
R-19	-14.37	R-19	-8.78	R-19	-3.94	R-19	-1.44
R-22	-15.09	R-22	-9.65	R-22	-4.13	R-22	-1.57
R-30	-15.52	R-30	-10.18	R-30	-4.25	R-30	-1.65
R-38	-15.88	R-38	-10.71	R-38	-4.35	R-38	-1.65
R-49	-16.12	R-49	-11.35	R-49	-4.42	R-49	-1.65
R-60	-16.12	R-60	-11.35	R-60	-4.42	R-60	-1.65
Slope(DD)	5271.21	Slope(DD)	4558.11	Slope(DD)	1448.04	Slope(DD)	738.25
Curve(DDS)	-69.852	Curve(DDS)	14.248	Curve(DDS)	-19.686	Curve(DDS)	3.120
Slab		Heated Basement		Slab		Heated Basement	
R-0	-7.38	R-0	-4.96	R-0	-3.21	R-0	-2.01
R-5	-8.37	R-5	-6.48	R-5	-3.24	R-5	-2.37
R-10	-8.61	R-10	-6.91	R-10	-3.20	R-10	-2.40
R-15	-8.85	R-15	-7.42	R-15	-3.23	R-15	-2.48
R-20	-9.09	R-20	-7.94	R-20	-3.26	R-20	-2.56
R-25	-9.33	R-25	-8.46	R-25	-3.29	R-25	-2.64
R-30	-9.57	R-30	-8.98	R-30	-3.32	R-30	-2.72
R-35	-9.81	R-35	-9.50	R-35	-3.35	R-35	-2.80
R-40	-10.05	R-40	-10.02	R-40	-3.38	R-40	-2.88
R-45	-10.29	R-45	-10.54	R-45	-3.41	R-45	-2.96
R-50	-10.53	R-50	-11.06	R-50	-3.44	R-50	-3.04
R-55	-10.77	R-55	-11.58	R-55	-3.47	R-55	-3.12
R-60	-11.01	R-60	-12.10	R-60	-3.50	R-60	-3.20
Slope(DD)	4457.71	Slope(DD)	3223.85	Slope(DD)	-672.17	Slope(DD)	795.14
Curve(DDS)	13.717	Curve(DDS)	-22.081	Curve(DDS)	44.530	Curve(DDS)	-6.027
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-4.96	R-0	-7.88	R-0	-2.01	R-0	.00
R-5	-5.95	R-5	-9.20	R-5	-2.04	R-5	.52
R-10	-6.94	R-10	-10.52	R-10	-2.07	R-10	.59
R-15	-7.93	R-15	-11.84	R-15	-2.10	R-15	.66
R-20	-8.92	R-20	-13.16	R-20	-2.13	R-20	.73
R-25	-9.91	R-25	-14.48	R-25	-2.16	R-25	.80
R-30	-10.90	R-30	-15.80	R-30	-2.19	R-30	.87
R-35	-11.89	R-35	-17.12	R-35	-2.22	R-35	.94
R-40	-12.88	R-40	-18.44	R-40	-2.25	R-40	1.01
R-45	-13.87	R-45	-19.76	R-45	-2.28	R-45	1.08
R-50	-14.86	R-50	-21.08	R-50	-2.31	R-50	1.15
R-55	-15.85	R-55	-22.40	R-55	-2.34	R-55	1.22
R-60	-16.84	R-60	-23.72	R-60	-2.37	R-60	1.29
Slope(DD)	4033.98	Slope(DD)	4134.41	Slope(DD)	-1611.36	Slope(DD)	-242.29
Curve(DDS)	-380.842	Curve(DDS)	-49.674	Curve(DDS)	145.208	Curve(DDS)	-9.948
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-5	.00	R-5	.00	R-5	.00	R-5	.00
R-10	.00	R-10	.00	R-10	.00	R-10	.00
R-15	.00	R-15	.00	R-15	.00	R-15	.00
R-20	.00	R-20	.00	R-20	.00	R-20	.00
R-25	.00	R-25	.00	R-25	.00	R-25	.00
R-30	.00	R-30	.00	R-30	.00	R-30	.00
R-35	.00	R-35	.00	R-35	.00	R-35	.00
R-40	.00	R-40	.00	R-40	.00	R-40	.00
R-45	.00	R-45	.00	R-45	.00	R-45	.00
R-50	.00	R-50	.00	R-50	.00	R-50	.00
R-55	.00	R-55	.00	R-55	.00	R-55	.00
R-60	.00	R-60	.00	R-60	.00	R-60	.00
Slope(DD)	13.958	Slope(DD)	3687.04	Slope(DD)	2.417	Slope(DD)	-82.35
Curve(DDS)	4.479	Curve(DDS)	14.384	Curve(DDS)	.729	Curve(DDS)	6.882
Base Load =	61.92 MBtu	Base Load =	23.78 MBtu	Base Load =	23.78 MBtu	Base Load =	23.78 MBtu
Typical Load =	17.57 MBtu	Typical Load =	14.55 MBtu	Typical Load =	14.55 MBtu	Typical Load =	14.55 MBtu
Residual Load =	3.84 MBtu	Residual Load =	4.62 MBtu	Residual Load =	4.62 MBtu	Residual Load =	4.62 MBtu

Kansas City MO		WYEC	MApartment Prototype Siding		Series Two	Cooling Load	
			Heating Load				
Delta Component (MBtu)		Delta Component (KBtu)	Delta Component (KBtu)		Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (KBtu)
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	10.37	R-7	-4.29	R-7	-2.79	R-7	-6.7
R-11	12.02	R-11	-4.90	R-11	-3.23	R-11	-7.6
R-19	13.51	R-13	-5.58	R-19	-3.64	R-13	-8.8
R-22	14.01	R-19	-5.92	R-22	-3.77	R-19	-9.3
R-30	14.69	R-27	-6.49	R-30	-3.95	R-27	-1.04
R-38	15.10	R-34	-6.84	R-38	-4.07	R-34	-1.10
R-49	15.43	R-49	-15.43	R-49	-4.14		
R-60	15.64	R-60	-4.19	R-60	-4.19		
Slope(DD)	4854.69	Slope(DD)	4420.21	Slope(DD)	1265.20	Slope(DD)	814.87
Curve(DDS)	-26.220	Curve(DDS)	44.052	Curve(DDS)	-1.085	Curve(DDS)	-9.934
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-8.14	R-0	-6.11	R-0	-2.64	R-0	-1.81
R-5	21.06	R-5	7.51	R-5	-2.68	R-5	4ft
R-5	14.06	R-5	7.91	R-5	-2.65	R-5	8ft
R-10	16.73	R-10	7.82	R-10	-2.67	R-10	4ft
R-10	7.06	R-10	8.38	R-10	-2.65	R-10	8ft
Intercept	-12.030	Intercept	.000	Intercept	-7.131	Intercept	
Slope(DD)	5858.81	Slope(DD)	3959.58	Slope(DD)	-884.87	Slope(DD)	404.32
Curve(DDS)	-52.566	Curve(DDS)	-27.158	Curve(DDS)	62.430	Curve(DDS)	1.560
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-6.11	R-0	.00	R-0	-1.81	R-0	.00
R-11	1.58	R-11	8.13	R-11	-7.2	R-11	flr
R-19	.07	R-19	-9.49	R-19	-3.30	R-19	flr
R-30	-9.00	R-30	-10.31	R-30	-1.17	R-30	flr
		R-38	-10.50		3.66	R-38	flr
		R-49	-11.04		-2.47	R-49	flr
		Intercept	-4.587	Intercept	4.628	Intercept	
		Slope(DD)	4257.66	Slope(DD)	-1328.10	Slope(DD)	
		Curve(DDS)	-50.093	Curve(DDS)	118.076	Curve(DDS)	
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00	ELF Ach		1-Pane	.00
.0007(.78)	11.78	2-Pane	-9.01	.0007(.60)	1.97	2-Pane	-.33
.0005(.54)	7.92	3-Pane	-11.41	.0005(.43)	1.34	3-Pane	-.37
.0003(.32)	4.46	R-10	-14.22	.0003(.26)	.77	R-10	-.41
Slope/.001ELF	13.395	Slope(DD)	3587.25	Slope/.001ELF	2.375	Slope(DD)	
Curve/.001ELF	4.897	Curve(DDS)	18.055	Curve/.001ELF	.625	Curve(DDS)	
Base Load =	58.17 MBtu			Base Load =	21.66 MBtu		
Typical Load =	15.99 MBtu			Typical Load =	13.47 MBtu		
Residual Load =	3.97 MBtu			Residual Load =	3.98 MBtu		

Series Two

Lake Charles LA WYEC One Story Prototype Siding

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.66	R-7	-5.27	R-7	-8.71	R-7	-2.84
R-11	-11.20	R-11	-6.02	R-11	-10.10	R-11	-3.24
R-19	-12.59	R-13	-6.90	R-19	-11.35	R-13	-3.71
R-22	-13.10	R-19	-7.33	R-22	-11.78	R-19	-3.95
R-30	-13.78	R-27	-8.01	R-30	-12.36	R-27	-4.38
R-38	-14.19	R-34	-8.43	R-38	-12.71	R-34	-4.64
R-49	-14.52			R-49	-13.01		
R-60	-14.74			R-60	-13.21		
Slope(DD)	1946.25	Slope(DD)	1552.06	Slope(DD)	1660.30	Slope(DD)	953.67
Curve(DDS)	-35.618	Curve(DDS)	13.261	Curve(DDS)	-18.809	Curve(DDS)	-9.237
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-7.48	R-0	-5.67	R-0	-7.94	R-0	-3.01
R-5	-8.94	R-5	-7.77	R-5	-8.23	R-5	-3.47
R-10	-9.28	R-5	-8.30	R-10	-8.17	R-5	-3.55
R-10	-9.13	R-10	-8.24	R-10	-8.27	R-10	-3.61
R-10	-9.56	R-10	-8.91	R-10	-8.14	R-10	-3.74
Intercept	.000	Intercept	-4.97	Intercept	.000	Intercept	22.070
Slope(DD)	924.73	Slope(DD)	768.34	Slope(DD)	-920.30	Slope(DD)	191.14
Curve(DDS)	39.256	Curve(DDS)	-2.090	Curve(DDS)	69.043	Curve(DDS)	-842
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-5.67	R-0	.00	R-0	-3.01	R-0	.00
R-11	-8.91	R-11	-8.15	R-11	-1.56	R-11	.22
R-19	-9.66	R-19	-9.33	R-19	-1.37	R-19	.04
R-30	-10.15	R-30	-9.93	R-30	-1.25	R-30	.22
Intercept	-.787	R-38	-10.07	Intercept	4.377	R-38	.26
Slope(DD)	1095.14	R-49	-10.47	Slope(DD)	-206.12	R-49	.38
Curve(DDS)	-71.859	Intercept	-1.8	Curve(DDS)	-9.661	Intercept	4.619
Infiltration	(/sf flr)	Slope(DD)	1184.54	Infiltration	(/sf flr)	Slope(DD)	523.22
ELF Ach		Curve(DDS)	51.327	ELF Ach		Curve(DDS)	-82.922
.0007(.76)	.00	Window U-value	(/sf)	.0007(.48)	.00	Window U-value	(/sf)
.0005(.51)	-2.46	1-Pane	.00	.0005(.34)	-2.03	1-Pane	.00
.0003(.31)	-4.60	2-Pane	-4.04	.0003(.22)	-4.23	2-Pane	-.26
		3-Pane	-4.95		2.35	3-Pane	-.27
		R-10	-6.02			R-10	-.29
Slope/.001ELF	4.870	Slope(DD)	930.87	Slope/.001ELF	8.247	Slope(DD)	-29.01
Curve/.001ELF	2.598	Curve(DDS)	14.738	Curve/.001ELF	-1.380	Curve(DDS)	3.279
Base Load = 45.64 MBtu				Base Load = 53.31 MBtu			
Typical Load = 15.63 MBtu				Typical Load = 28.46 MBtu			
Residual Load = .49 MBtu				Residual Load = 6.26 MBtu			

Lake Charles LA WYEC			Mid Town Prototype Siding			Series Two		
Heating Load			Cooling Load					
Delta Component (MBtu)			Delta Component (MBtu)			Delta Component (MBtu)		
Ceiling (/sf)			Ceiling (/sf)			Ceiling (/sf)		
R-0	.00	10.58	R-0	.00	7.95	R-0	.00	8.42
R-7	-4.04	3.84	R-7	-2.23	3.27	R-7	-3.20	3.08
R-11	-4.69	2.77	R-11	-2.55	2.60	R-11	-3.71	2.23
R-19	-5.27	1.80	R-13	-2.87	1.92	R-19	-4.17	1.47
R-22	-5.44	1.51	R-19	-3.03	1.59	R-22	-4.31	1.23
R-30	-5.68	1.12	R-27	-3.24	1.15	R-30	-4.50	.92
R-38	-5.82	.88	R-34	-3.37	.88	R-38	-4.61	.73
R-49	-5.92	.71				R-49	-4.70	.58
R-60	-5.99	.60				R-60	-4.76	.48
Slope(DD)			Slope(DD)			Slope(DD)		
Curve(DDS)			Curve(DDS)			Curve(DDS)		
1583.70			1034.78			1304.21		
33.922			82.453			19.491		
Slab (/ft)			Slab (/ft)			Slab (/ft)		
Heated Basement			Heated Basement			Heated Basement		
R-0	-3.19	11.31	R-0	-2.66	24.56	R-0	-3.00	-5.07
R-5 2ft	-3.47	4.31	R-5 4ft	-3.22	10.56	R-5 2ft	-3.05	-6.32
R-5 4ft	-3.53	2.81	R-5 8ft	-3.33	7.81	R-5 4ft	-3.02	-5.57
R-10 2ft	-3.51	3.31	R-10 4ft	-3.31	8.31	R-10 2ft	-3.07	-6.82
R-10 4ft	-3.57	1.81	R-10 8ft	-3.44	5.06	R-10 4ft	-2.99	-4.82
Intercept	.000		Intercept	-1.22		Intercept	.000	
Slope(DD)	291.60		Slope(DD)	417.16		Slope(DD)	-1737.62	
Curve(DDS)	58.640		Curve(DDS)	4.684		Curve(DDS)	110.972	
Unheated Basement (/sf)			Unheated Basement (/sf)			Unheated Basement (/sf)		
Crawl			Crawl			Crawl		
R-0	-2.66	1.64	R-0	.00	6.07	R-0	-1.03	2.95
R-11 flr	-3.33	.52	R-11 flr	-2.78	1.44	R-11 flr	-.45	3.91
R-19 flr	-3.50	.24	R-19 flr	-3.16	.80	R-19 flr	-.33	4.10
R-30 flr	-3.61	.05	R-30 flr	-3.35	.49	R-30 flr	-.26	4.23
Intercept	-.429		R-38 flr	-3.39	.42	Intercept	4.538	
Slope(DD)	651.41		R-49 flr	-3.51	.22	Slope(DD)	-408.03	
Curve(DDS)	-48.470		Intercept	-.277		Curve(DDS)	19.005	
Infiltration (/sf flr)			Infiltration (/sf flr)			Infiltration (/sf flr)		
Window U-value			Window U-value			Window U-value		
ELF Ach			ELF Ach			ELF Ach		
.0007(.71)	.00	3.11	1-Pane	.00	28.40	.0007(.51)	.00	4.13
.0005(.51)	-1.68	1.71	2-Pane	-2.74	9.37	.0005(.37)	-1.48	2.90
.0003(.30)	-2.87	.72	3-Pane	-3.26	5.73	.0003(.22)	-2.91	1.71
			R-10	-3.88	1.45			
Slope(DD)			Slope(DD)			Slope(DD)		
Curve(DDS)			Curve(DDS)			Curve(DDS)		
.875			572.59			5.542		
5.104			19.055			.521		
Base Load =			Base Load =			Base Load =		
Typical Load =			Typical Load =			Typical Load =		
Residual Load =			Residual Load =			Residual Load =		
20.49 MBtu			20.49 MBtu			35.72 MBtu		
7.52 MBtu			7.52 MBtu			25.85 MBtu		
2.46 MBtu			2.46 MBtu			12.82 MBtu		

Delta Component (MBtu)

Delta Component (KBtu)

Delta Component (KBtu)

Delta Component (KBtu)

Delta Component (KBtu)

Delta Component (KBtu)

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Delta Component (KBtu)

Delta Component (KBtu)

Delta Component (KBtu)

Las Vegas NV		WYEC		One Story		Prototype		Siding		Series Two		Cooling Load	
				Heating Load									
		Delta Component		Delta Component		Delta Component		Delta Component		Delta Component		Delta Component	
		(MBtu)		(KBtu)		(MBtu)		(KBtu)		(MBtu)		(KBtu)	
		Ceiling		Wall		Ceiling		Wall		Ceiling		Wall	
		R-0		R-0		R-0		R-0		R-0		R-0	
		R-7		R-7		R-7		R-7		R-7		R-7	
		R-11		R-11		R-11		R-11		R-11		R-11	
		R-19		R-19		R-19		R-19		R-19		R-19	
		R-22		R-22		R-22		R-22		R-22		R-22	
		R-30		R-30		R-30		R-30		R-30		R-30	
		R-38		R-38		R-38		R-38		R-38		R-38	
		R-49		R-49		R-49		R-49		R-49		R-49	
		R-60		R-60		R-60		R-60		R-60		R-60	
		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)	
		Slab		Heated Basement		Slab		Heated Basement		Slab		Heated Basement	
		R-0		R-0		R-0		R-0		R-0		R-0	
		R-5		R-5		R-5		R-5		R-5		R-5	
		R-10		R-10		R-10		R-10		R-10		R-10	
		R-10 4ft		R-10 4ft		R-10 4ft		R-10 4ft		R-10 4ft		R-10 4ft	
		Intercept		Intercept		Intercept		Intercept		Intercept		Intercept	
		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)	
		Unheated Basement		Crawl		Unheated Basement		Crawl		Unheated Basement		Crawl	
		R-0		R-0		R-0		R-0		R-0		R-0	
		R-11		R-11		R-11		R-11		R-11		R-11	
		R-19		R-19		R-19		R-19		R-19		R-19	
		R-30		R-30		R-30		R-30		R-30		R-30	
		R-38		R-38		R-38		R-38		R-38		R-38	
		R-49		R-49		R-49		R-49		R-49		R-49	
		Intercept		Intercept		Intercept		Intercept		Intercept		Intercept	
		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)	
		Infiltration		Window U-value		Infiltration		Window U-value		Infiltration		Window U-value	
		ELF Ach		1-Pane		ELF Ach		1-Pane		ELF Ach		1-Pane	
		0007(.71)		0005(.55)		0007(.69)		0005(.49)		0007(.69)		0005(.49)	
		0003(.31)		0003(.31)		0003(.29)		0003(.29)		0003(.29)		0003(.29)	
		Slope/.001ELF		Slope(DD)		Slope/.001ELF		Slope(DD)		Slope/.001ELF		Slope(DD)	
		Curve/.001ELF		Curve(DDS)		Curve/.001ELF		Curve(DDS)		Curve/.001ELF		Curve(DDS)	
		Base Load =		64.86 MBtu		Base Load =		64.86 MBtu		Base Load =		64.86 MBtu	
		Typical Load =		21.37 MBtu		Typical Load =		21.37 MBtu		Typical Load =		21.37 MBtu	
		Residual Load =		2.58 MBtu		Residual Load =		2.58 MBtu		Residual Load =		2.58 MBtu	

Las Vegas NV		WYEC	Mid Town	Prototype	Siding	Series Two	Cooling Load			
		Heating Load								
Delta Component		Delta Component		Delta Component		Delta Component		Delta Component		
(MBtu)	(KBtu)	(MBtu)	(KBtu)	(MBtu)	(KBtu)	(MBtu)	(KBtu)	(MBtu)	(KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00	R-0	.00	
R-7	15.16	R-7	11.27	R-7	11.27	R-7	16.41	R-7	16.41	
R-11	5.54	R-11	4.62	R-11	4.62	R-11	6.49	R-11	6.49	
R-19	4.00	R-13	3.68	R-13	3.68	R-19	4.90	R-13	4.90	
R-22	2.63	R-19	2.71	R-19	2.71	R-22	3.48	R-19	3.48	
R-30	2.20	R-27	2.23	R-27	2.23	R-30	2.95	R-27	2.95	
R-38	1.63	R-34	1.62	R-34	1.62	R-38	2.24	R-34	2.24	
R-49	1.29	R-49	1.24	R-49	1.24	R-49	1.81	R-49	1.81	
R-60	1.04	R-60	1.04	R-60	1.04	R-60	1.42	R-60	1.42	
R-60	.88	R-60	1.24	R-60	1.24	R-60	1.16	R-60	1.16	
Slope(DD)	2323.66	Slope(DD)	1454.01	Slope(DD)	3241.08	Slope(DD)	2083.23	Slope(DD)	2083.23	
Curve(DDS)	39.327	Curve(DDS)	119.411	Curve(DDS)	-79.696	Curve(DDS)	-47.461	Curve(DDS)	-47.461	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	
R-0	-4.89	R-0	-3.54	R-0	-4.46	R-0	5.45	R-0	5.45	
R-5 2ft	-5.25	R-5 4ft	-4.39	R-5 2ft	-4.55	R-5 4ft	3.20	R-5 2ft	3.20	
R-5 4ft	-5.29	R-5 8ft	-4.52	R-5 4ft	-4.56	R-5 8ft	2.95	R-5 4ft	2.95	
R-10 2ft	-5.30	R-10 4ft	-4.54	R-10 2ft	-4.58	R-10 4ft	2.45	R-10 2ft	2.45	
R-10 4ft	-5.35	R-10 8ft	-4.67	R-10 4ft	-4.60	R-10 8ft	1.95	R-10 4ft	1.95	
Intercept	.000	Intercept	11.333	Intercept	.000	Intercept	.000	Intercept	.000	
Slope(DD)	147.57	Slope(DD)	650.40	Slope(DD)	747.97	Slope(DD)	868.86	Slope(DD)	868.86	
Curve(DDS)	144.451	Curve(DDS)	8.925	Curve(DDS)	-15.669	Curve(DDS)	-4.205	Curve(DDS)	-4.205	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	
R-0	-3.54	R-0	.00	R-0	-2.36	R-0	3.86	R-0	3.86	
R-11 flr	-4.63	R-11 flr	-4.00	R-11 flr	-2.14	R-11 flr	4.23	R-11 flr	4.23	
R-19 flr	-4.93	R-19 flr	-4.55	R-19 flr	-2.13	R-19 flr	4.24	R-19 flr	4.24	
R-30 flr	-5.12	R-30 flr	-4.82	R-30 flr	-2.13	R-30 flr	4.25	R-30 flr	4.25	
Intercept	-.375	R-38 flr	-4.88	R-38 flr	.88	R-38 flr	5.13	R-38 flr	5.13	
Slope(DD)	1162.43	R-49 flr	-5.06	R-49 flr	.59	R-49 flr	4.89	R-49 flr	4.89	
Curve(DDS)	-93.974	Intercept	-.128	Intercept	4.236	Intercept	4.293	Intercept	4.293	
Infiltration	(/sf flr)	Slope(DD)	1324.71	Slope(DD)	29.97	Slope(DD)	1264.10	Slope(DD)	1264.10	
ELF Ach	.00	Curve(DDS)	89.377	Curve(DDS)	-19.995	Curve(DDS)	-113.275	Curve(DDS)	-113.275	
.0007(.77)	.00	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf)	
.0005(.52)	-2.36	1-Pane	.00	.0007(.69)	.00	1-Pane	.00	.0007(.69)	.00	
.0003(.33)	-3.97	2-Pane	-3.87	.0005(.49)	-1.23	2-Pane	-1.61	.0005(.49)	-1.61	
Slope/.001ELF	.458	3-Pane	-4.58	.0003(.29)	-2.39	3-Pane	-2.15	.0003(.29)	-2.15	
Curve/.001ELF	7.813	R-10	-5.41	Slope/.001ELF	4.250	R-10	-2.78	Slope/.001ELF	4.250	
		Slope(DD)	726.57	Curve/.001ELF	.729	Slope(DD)	922.27	Curve/.001ELF	.729	
		Curve(DDS)	29.066			Curve(DDS)	-4.155			
Base Load =	29.33 MBtu	Base Load =	42.49 MBtu	Base Load =	42.49 MBtu	Base Load =	42.49 MBtu	Base Load =	42.49 MBtu	
Typical Load =	10.58 MBtu	Typical Load =	26.28 MBtu	Typical Load =	26.28 MBtu	Typical Load =	26.28 MBtu	Typical Load =	26.28 MBtu	
Residual Load =	5.11 MBtu	Residual Load =	8.25 MBtu	Residual Load =	8.25 MBtu	Residual Load =	8.25 MBtu	Residual Load =	8.25 MBtu	

Base Load = 42.49 MBtu
Typical Load = 26.28 MBtu
Residual Load = 8.25 MBtu

Las Vegas NV		WYEC	MApartment Prototype Siding		Series Two	Cooling Load		
		Heating Load						
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)		
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)		
R-0	.00	15.43	R-0	.00	17.47	R-0	.00	
R-7	-5.97	5.49	R-7	-2.14	4.33	R-7	-6.30	
R-11	-6.92	3.90	R-11	-2.45	3.36	R-11	-7.30	
R-19	-7.77	2.48	R-13	-2.75	2.43	R-19	-8.20	
R-22	-8.02	2.07	R-19	-2.89	1.96	R-22	-8.55	
R-30	-8.34	1.53	R-27	-3.07	1.42	R-30	-9.02	
R-38	-8.54	1.20	R-34	-3.17	1.09	R-38	-9.30	
R-49	-8.68	.97				R-49	-9.55	
R-60	-8.77	.82				R-60	-9.72	
Slope(DD)		2145.73	Slope(DD)		1226.55	Slope(DD)		2005.10
Curve(DDS)		77.174	Curve(DDS)		155.510	Curve(DDS)		-37.074
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)		
R-0	-5.34	14.51	R-0	-4.30	49.17	R-0	-3.80	
R-5 2ft	-5.65	4.17	R-5 4ft	-5.11	22.17	R-5 2ft	-3.90	
R-5 4ft	-5.70	2.67	R-5 8ft	-5.23	18.17	R-5 4ft	-3.92	
R-10 2ft	-5.70	2.67	R-10 4ft	-5.25	17.67	R-10 2ft	-3.93	
R-10 4ft	-5.74	1.34	R-10 8ft	-5.35	14.17	R-10 4ft	-3.95	
Intercept	.000		Intercept	6.994		Intercept	.000	
Slope(DD)	-23.47		Slope(DD)	579.42		Slope(DD)	635.96	
Curve(DDS)	182.597		Curve(DDS)	16.030		Curve(DDS)	12.683	
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)		
R-0	-4.30	2.46	R-0	.00	9.63	R-0	-2.33	
R-11 flr	-5.22	.93	R-11 flr	-4.40	2.30	R-11 flr	-2.08	
R-19 flr	-5.44	.55	R-19 flr	-5.01	1.28	R-19 flr	-2.07	
R-30 flr	-5.59	.31	R-30 flr	-5.27	.84	R-30 flr	-2.06	
			R-38 flr	-5.33	.74			
			R-49 flr	-5.50	.45			
Intercept	-.335		Intercept	-.324		Intercept	3.242	
Slope(DD)	867.69		Slope(DD)	1367.83		Slope(DD)	8.34	
Curve(DDS)	-62.967		Curve(DDS)	111.653		Curve(DDS)	-18.935	
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)		
ELF Ach				ELF Ach				
.0007(.77)	.00	3.85	1-Pane	.00	38.16	.0007(.69)	.00	
.0005(.52)	-2.37	1.87	2-Pane	-3.96	10.66	.0005(.49)	-1.24	
.0003(.33)	-3.90	.60	3-Pane	-4.58	6.36	.0003(.29)	-2.40	
			R-10	-5.31	1.32			
Slope/.001ELF		-.625	Slope(DD)		473.11	Slope(DD)		983.67
Curve/.001ELF		8.750	Curve(DDS)		36.827	Curve(DDS)		-4.584
Base Load =		27.91 MBtu	Base Load =		39.37 MBtu	Base Load =		39.37 MBtu
Typical Load =		9.66 MBtu	Typical Load =		24.24 MBtu	Typical Load =		24.24 MBtu
Residual Load =		5.56 MBtu	Residual Load =		6.57 MBtu	Residual Load =		6.57 MBtu

Los Angeles CA WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-12.35	R-7	-6.38	R-7	-2.61	R-7	-.42
R-11	-14.32	R-11	-7.29	R-11	-3.03	R-11	-.48
R-19	-16.09	R-13	-8.28	R-19	-3.40	R-13	-.57
R-22	-16.73	R-19	-8.77	R-22	-3.48	R-19	-.62
R-30	-17.59	R-27	-9.39	R-30	-3.59	R-27	-.69
R-38	-18.11	R-34	-9.77	R-38	-3.65	R-34	-.73
R-49	-18.50			R-49	-3.66		
R-60	-18.75			R-60	-3.66		
Slope(DD)	2400.17	Slope(DD)	1391.46	Slope(DD)	182.02	Slope(DD)	184.09
Curve(DDS)	-32.995	Curve(DDS)	82.403	Curve(DDS)	39.389	Curve(DDS)	-6.835
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-5.67	R-0	-4.13	R-0	-1.19	R-0	-.98
R-5 2ft	-7.48	R-5 4ft	-6.18	R-5 2ft	-1.04	R-5 4ft	-.96
R-5 4ft	-7.80	R-5 8ft	-6.65	R-5 4ft	-.98	R-5 8ft	-.94
R-10 2ft	-7.71	R-10 4ft	-6.55	R-10 2ft	-1.01	R-10 4ft	-.96
R-10 4ft	-8.03	R-10 8ft	-7.02	R-10 4ft	-.92	R-10 8ft	-.93
Intercept	.000	Intercept	3.167	Intercept	.000	Intercept	-.949
Slope(DD)	642.26	Slope(DD)	556.89	Slope(DD)	-492.23	Slope(DD)	-36.62
Curve(DDS)	111.044	Curve(DDS)	1.277	Curve(DDS)	20.935	Curve(DDS)	.552
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-4.13	R-0	.00	R-0	-.98	R-0	.00
R-11 flr	-8.38	R-11 flr	-9.72	R-11 flr	-.28	R-11 flr	.68
R-19 flr	-9.22	R-19 flr	-10.69	R-19 flr	-.08	R-19 flr	.77
R-30 flr	-9.76	R-30 flr	-11.11	R-30 flr	.05	R-30 flr	.79
		R-38 flr	-11.21			R-38 flr	.80
		R-49 flr	-11.49			R-49 flr	.82
Intercept	-1.715	Intercept	-2.301	Intercept	.729	Intercept	1.039
Slope(DD)	1150.68	Slope(DD)	577.69	Slope(DD)	-308.61	Slope(DD)	-56.36
Curve(DDS)	-52.166	Curve(DDS)	183.867	Curve(DDS)	26.129	Curve(DDS)	-10.650
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.63)	.00	1-Pane	.00	.0007(.56)	.00	1-Pane	.00
.0005(.44)	-2.54	2-Pane	-4.43	.0005(.40)	.03	2-Pane	.05
.0003(.28)	-4.12	3-Pane	-5.12	.0003(.24)	.04	3-Pane	.05
		R-10	-5.94			R-10	.04
Slope/.001ELF	-1.104	Slope(DD)	417.30	Slope/.001ELF	.097	Slope(DD)	19.97
Curve/.001ELF	7.793	Curve(DDS)	31.374	Curve/.001ELF	-.162	Curve(DDS)	-1.008
Base Load = 48.89 MBtu				Base Load = 6.60 MBtu			
Typical Load = 15.49 MBtu				Typical Load = 1.71 MBtu			
Residual Load = 7.29 MBtu				Residual Load = -.52 MBtu			

Los Angeles CA WYEC Mid Town Prototype Siding Series Two			Cooling Load		
Heating Load					
Delta Component (MBtu)			Delta Component (MBtu)		
Ceiling (/sf)			Ceiling (/sf)		
R-0	.00	12.66	R-0	.00	3.80
R-7	-5.00	4.33	R-7	-1.25	1.71
R-11	-5.79	3.01	R-11	-1.45	1.38
R-19	-6.51	1.81	R-19	-1.63	1.08
R-22	-6.69	1.52	R-22	-1.73	.92
R-30	-6.93	1.12	R-30	-1.86	.70
R-38	-7.07	.88	R-38	-1.94	.56
R-49	-7.18	.70	R-49	-2.01	.45
R-60	-7.25	.58	R-60	-2.05	.38
Slope(DD) 1521.14			Slope(DD) 1052.05		
Curve(DDS) 103.639			Curve(DDS) -69.429		
Slab (/ft)			Slab (/ft)		
Heated Basement			Heated Basement		
R-0	-2.54	11.81	R-0	-.36	-4.86
R-5 2ft	-2.81	5.06	R-5 2ft	-.30	-3.36
R-5 4ft	-2.86	3.81	R-5 4ft	-.28	-2.86
R-10 2ft	-2.85	4.06	R-10 2ft	-.29	-3.11
R-10 4ft	-2.91	2.56	R-10 4ft	-.25	-2.11
Intercept	.000		Intercept	.000	
Slope(DD)	834.51		Slope(DD)	-901.80	
Curve(DDS)	38.524		Curve(DDS)	41.362	
Unheated Basement (/sf)			Unheated Basement (/sf)		
Crawl			Crawl		
R-0	-1.90	1.85	R-0	-.30	-.22
R-11 flr	-2.74	.45	R-11 flr	.15	.53
R-19 flr	-2.95	.10	R-19 flr	.22	.64
R-30 flr	-3.09	-.13	R-30 flr	.26	.71
Intercept	-.732		Intercept	.872	
Slope(DD)	813.63		Slope(DD)	-205.23	
Curve(DDS)	-60.317		Curve(DDS)	-1.651	
Infiltration (/sf flr) Window U-value			Infiltration (/sf flr) Window U-value		
ELF Ach			ELF Ach		
.0007(.66)	.00	1.81	.0007(.56)	.00	-2.24
.0005(.45)	-1.32	.71	.0005(.40)	.38	-1.92
.0003(.26)	-2.08	.07	.0003(.24)	1.07	-1.35
Slope/.001ELF			Slope/.001ELF		
Curve/.001ELF 5.834			Curve/.001ELF 3.229		
Base Load = 19.37 MBtu			Base Load = 5.06 MBtu		
Typical Load = 5.99 MBtu			Typical Load = 3.23 MBtu		
Residual Load = 6.94 MBtu			Residual Load = 4.67 MBtu		
Delta Component (KBtu)			Delta Component (KBtu)		
Wall			Wall		
R-0		7.95	R-0		.00
R-7	-2.40	2.92	R-7	-.25	.59
R-11	-2.74	2.20	R-11	-.28	.52
R-13	-3.02	1.61	R-13	-.34	.39
R-19	-3.16	1.32	R-19	-.37	.33
R-27	-3.35	.92	R-27	-.41	.25
R-34	-3.47	.67	R-34	-.43	.21
Slope(DD) 741.48			Slope(DD) 260.92		
Curve(DDS) 136.948			Curve(DDS) -10.200		
Heated Basement (/ft)			Heated Basement (/ft)		
R-0	-1.90	27.81	R-0	-.30	-3.36
R-5 4ft	-2.36	16.31	R-5 4ft	-.27	-2.61
R-5 8ft	-2.45	14.06	R-5 8ft	-.27	-2.61
R-10 4ft	-2.43	14.56	R-10 4ft	-.26	-2.36
R-10 8ft	-2.53	12.06	R-10 8ft	-.24	-1.86
Intercept	7.686		Intercept	-.605	
Slope(DD)	429.18		Slope(DD)	-159.02	
Curve(DDS)	2.680		Curve(DDS)	2.278	
Unheated Basement (/sf)			Unheated Basement (/sf)		
Crawl			Crawl		
R-0	.00	5.02	R-0	.00	.28
R-11 flr	-2.76	.42	R-11 flr	.45	1.03
R-19 flr	-3.06	-.08	R-19 flr	.50	1.11
R-30 flr	-3.21	-.34	R-30 flr	.53	1.16
R-38 flr	-3.25	-.40	R-38 flr	.54	1.18
R-49 flr	-3.35	-.57	R-49 flr	.56	1.21
Intercept	-.883		Intercept	1.270	
Slope(DD)	601.46		Slope(DD)	-125.58	
Curve(DDS)	107.206		Curve(DDS)	-13.329	
Infiltration (/sf flr) Window U-value			Infiltration (/sf flr) Window U-value		
ELF Ach			ELF Ach		
.0007(.66)	.00	23.51	.0007(.56)	.00	-6.81
.0005(.45)	-2.26	7.82	.0005(.40)	.35	-4.38
.0003(.26)	-2.70	4.79	.0003(.24)	.57	-2.85
Slope/.001ELF			Slope/.001ELF		
Curve/.001ELF 483.65			Curve/.001ELF -464.80		
Base Load = 19.37 MBtu			Base Load = 5.06 MBtu		
Typical Load = 5.99 MBtu			Typical Load = 3.23 MBtu		
Residual Load = 6.94 MBtu			Residual Load = 4.67 MBtu		

Los Angeles CA	WYEC	MApartment Prototype Siding	Series Two	Cooling Load			
				Heating Load			
Delta Component (MBtu)		Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (KBtu)	Delta Component (KBtu)	Delta Component (KBtu)
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	12.41	R-7	7.33	R-7	3.57	R-7	.96
R-11	5.02	R-11	2.42	R-11	1.27	R-11	.15
R-19	5.82	R-19	1.78	R-19	1.47	R-19	.42
R-22	6.54	R-22	1.21	R-22	1.12	R-22	.17
R-30	6.69	R-30	1.94	R-30	.82	R-30	.27
R-38	6.90	R-38	2.02	R-38	.71	R-38	.24
R-49	7.02	R-49	.65	R-49	.55	R-49	.18
R-60	7.11	R-60	.46	R-60	.46	R-60	.25
	7.16		.46		.34		.17
	.47				.26		
Slope(DD)	1191.69	Slope(DD)	441.06	Slope(DD)	783.58	Slope(DD)	182.39
Curve(DDS)	151.959	Curve(DDS)	171.445	Curve(DDS)	-30.612	Curve(DDS)	-815
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-2.97	R-0	21.98	R-0	-2.22	R-0	-1.17
R-5	2.97	R-5	6.65	R-5	-1.19	R-5	-1.19
R-10	2.97	R-10	4.65	R-10	-1.15	R-10	-1.15
R-15	2.97	R-15	5.15	R-15	-1.19	R-15	-1.19
R-20	2.97	R-20	2.65	R-20	-1.14	R-20	-1.14
R-25	2.97	R-25	2.20	R-25	-1.14	R-25	-1.14
R-30	2.97	R-30	2.20	R-30	-1.14	R-30	-1.14
R-35	2.97	R-35	2.20	R-35	-1.14	R-35	-1.14
R-40	2.97	R-40	2.20	R-40	-1.14	R-40	-1.14
R-45	2.97	R-45	2.20	R-45	-1.14	R-45	-1.14
R-50	2.97	R-50	2.20	R-50	-1.14	R-50	-1.14
R-55	2.97	R-55	2.20	R-55	-1.14	R-55	-1.14
R-60	2.97	R-60	2.20	R-60	-1.14	R-60	-1.14
R-65	2.97	R-65	2.20	R-65	-1.14	R-65	-1.14
R-70	2.97	R-70	2.20	R-70	-1.14	R-70	-1.14
R-75	2.97	R-75	2.20	R-75	-1.14	R-75	-1.14
R-80	2.97	R-80	2.20	R-80	-1.14	R-80	-1.14
R-85	2.97	R-85	2.20	R-85	-1.14	R-85	-1.14
R-90	2.97	R-90	2.20	R-90	-1.14	R-90	-1.14
R-95	2.97	R-95	2.20	R-95	-1.14	R-95	-1.14
R-100	2.97	R-100	2.20	R-100	-1.14	R-100	-1.14
R-105	2.97	R-105	2.20	R-105	-1.14	R-105	-1.14
R-110	2.97	R-110	2.20	R-110	-1.14	R-110	-1.14
R-115	2.97	R-115	2.20	R-115	-1.14	R-115	-1.14
R-120	2.97	R-120	2.20	R-120	-1.14	R-120	-1.14
R-125	2.97	R-125	2.20	R-125	-1.14	R-125	-1.14
R-130	2.97	R-130	2.20	R-130	-1.14	R-130	-1.14
R-135	2.97	R-135	2.20	R-135	-1.14	R-135	-1.14
R-140	2.97	R-140	2.20	R-140	-1.14	R-140	-1.14
R-145	2.97	R-145	2.20	R-145	-1.14	R-145	-1.14
R-150	2.97	R-150	2.20	R-150	-1.14	R-150	-1.14
R-155	2.97	R-155	2.20	R-155	-1.14	R-155	-1.14
R-160	2.97	R-160	2.20	R-160	-1.14	R-160	-1.14
R-165	2.97	R-165	2.20	R-165	-1.14	R-165	-1.14
R-170	2.97	R-170	2.20	R-170	-1.14	R-170	-1.14
R-175	2.97	R-175	2.20	R-175	-1.14	R-175	-1.14
R-180	2.97	R-180	2.20	R-180	-1.14	R-180	-1.14
R-185	2.97	R-185	2.20	R-185	-1.14	R-185	-1.14
R-190	2.97	R-190	2.20	R-190	-1.14	R-190	-1.14
R-195	2.97	R-195	2.20	R-195	-1.14	R-195	-1.14
R-200	2.97	R-200	2.20	R-200	-1.14	R-200	-1.14
R-205	2.97	R-205	2.20	R-205	-1.14	R-205	-1.14
R-210	2.97	R-210	2.20	R-210	-1.14	R-210	-1.14
R-215	2.97	R-215	2.20	R-215	-1.14	R-215	-1.14
R-220	2.97	R-220	2.20	R-220	-1.14	R-220	-1.14
R-225	2.97	R-225	2.20	R-225	-1.14	R-225	-1.14
R-230	2.97	R-230	2.20	R-230	-1.14	R-230	-1.14
R-235	2.97	R-235	2.20	R-235	-1.14	R-235	-1.14
R-240	2.97	R-240	2.20	R-240	-1.14	R-240	-1.14
R-245	2.97	R-245	2.20	R-245	-1.14	R-245	-1.14
R-250	2.97	R-250	2.20	R-250	-1.14	R-250	-1.14
R-255	2.97	R-255	2.20	R-255	-1.14	R-255	-1.14
R-260	2.97	R-260	2.20	R-260	-1.14	R-260	-1.14
R-265	2.97	R-265	2.20	R-265	-1.14	R-265	-1.14
R-270	2.97	R-270	2.20	R-270	-1.14	R-270	-1.14
R-275	2.97	R-275	2.20	R-275	-1.14	R-275	-1.14
R-280	2.97	R-280	2.20	R-280	-1.14	R-280	-1.14
R-285	2.97	R-285	2.20	R-285	-1.14	R-285	-1.14
R-290	2.97	R-290	2.20	R-290	-1.14	R-290	-1.14
R-295	2.97	R-295	2.20	R-295	-1.14	R-295	-1.14
R-300	2.97	R-300	2.20	R-300	-1.14	R-300	-1.14
R-305	2.97	R-305	2.20	R-305	-1.14	R-305	-1.14
R-310	2.97	R-310	2.20	R-310	-1.14	R-310	-1.14
R-315	2.97	R-315	2.20	R-315	-1.14	R-315	-1.14
R-320	2.97	R-320	2.20	R-320	-1.14	R-320	-1.14
R-325	2.97	R-325	2.20	R-325	-1.14	R-325	-1.14
R-330	2.97	R-330	2.20	R-330	-1.14	R-330	-1.14
R-335	2.97	R-335	2.20	R-335	-1.14	R-335	-1.14
R-340	2.97	R-340	2.20	R-340	-1.14	R-340	-1.14
R-345	2.97	R-345	2.20	R-345	-1.14	R-345	-1.14
R-350	2.97	R-350	2.20	R-350	-1.14	R-350	-1.14
R-355	2.97	R-355	2.20	R-355	-1.14	R-355	-1.14
R-360	2.97	R-360	2.20	R-360	-1.14	R-360	-1.14
R-365	2.97	R-365	2.20	R-365	-1.14	R-365	-1.14
R-370	2.97	R-370	2.20	R-370	-1.14	R-370	-1.14
R-375	2.97	R-375	2.20	R-375	-1.14	R-375	-1.14
R-380	2.97	R-380	2.20	R-380	-1.14	R-380	-1.14
R-385	2.97	R-385	2.20	R-385	-1.14	R-385	-1.14
R-390	2.97	R-390	2.20	R-390	-1.14	R-390	-1.14
R-395	2.97	R-395	2.20	R-395	-1.14	R-395	-1.14
R-400	2.97	R-400	2.20	R-400	-1.14	R-400	-1.14
R-405	2.97	R-405	2.20	R-405	-1.14	R-405	-1.14
R-410	2.97	R-410	2.20	R-410	-1.14	R-410	-1.14
R-415	2.97	R-415	2.20	R-415	-1.14	R-415	-1.14
R-420	2.97	R-420	2.20	R-420	-1.14	R-420	-1.14
R-425	2.97	R-425	2.20	R-425	-1.14	R-425	-1.14
R-430	2.97	R-430	2.20	R-430	-1.14	R-430	-1.14
R-435	2.97	R-435	2.20	R-435	-1.14	R-435	-1.14
R-440	2.97	R-440	2.20	R-440	-1.14	R-440	-1.14
R-445	2.97	R-445	2.20	R-445	-1.14	R-445	-1.14
R-450	2.97	R-450	2.20	R-450	-1.14	R-450	-1.14
R-455	2.97	R-455	2.20	R-455	-1.14	R-455	-1.14
R-460	2.97	R-460	2.20	R-460	-1.14	R-460	-1.14
R-465	2.97	R-465	2.20	R-465	-1.14	R-465	-1.14
R-470	2.97	R-470	2.20	R-470	-1.14	R-470	-1.14
R-475	2.97	R-475	2.20	R-475	-1.14	R-475	-1.14
R-480	2.97	R-480	2.20	R-480	-1.14	R-480	-1.14
R-485	2.97	R-485	2.20	R-485	-1.14	R-485	-1.14
R-490	2.97	R-490	2.20	R-490	-1.14	R-490	-1.14
R-495	2.97	R-495	2.20	R-495	-1.14	R-495	-1.14
R-500	2.97	R-500	2.20	R-500	-1.14	R-500	-1.14
R-505	2.97	R-505	2.20	R-505	-1.14	R-505	-1.14
R-510	2.97	R-510	2.20	R-510	-1.14	R-510	-1.14
R-515	2.97	R-515	2.20	R-515	-1.14	R-515	-1.14
R-520	2.97	R-520	2.20	R-520	-1.14	R-520	-1.14
R-525	2.97	R-525	2.20	R-525	-1.14	R-525	-1.14
R-530	2.97	R-530	2.20	R-530	-1.14	R-530	-1.14
R-535	2.97	R-535	2.20	R-535	-1.14	R-535	-1.14
R-540	2.97	R-540	2.20	R-540	-1.14	R-540	-1.14
R-545	2.97	R-545	2.20	R-545	-1.14	R-545	-1.14
R-550	2.97	R-550	2.20	R-550	-1.14	R-550	-1.14
R-555	2.97	R-555	2.20	R-555	-1.14	R-555	-1.14
R-560	2.97	R-560	2.20	R-560	-1.14	R-560	-1.14
R-565	2.97	R-565	2.20	R-565	-1.14	R-565	-1.14
R-570	2.97	R-570	2.20	R-570	-1.14	R-570	-1.14
R-575	2.97	R-575	2.20	R-575	-1.14	R-575	-1.14
R-580	2.97	R-580	2.20	R-580	-1.14	R-580	-1.14
R-585	2.97	R-585	2.20	R-585	-1.14	R-585	-1.14
R-590	2.97	R-590	2.20	R-590	-1.14	R-590	-1.14
R-595	2.97	R-595	2.20	R-595	-1.14	R-595	-1.14
R-600	2.97	R-600	2.20	R-600	-1.14	R-600	-1.14
R-605	2.97	R-605	2.20	R-605	-1.14	R-605	-1.14
R-610	2.97	R-610	2.20	R-610	-1.14	R-610	-1.14
R-615	2.97	R-615	2.20	R-615	-1.14	R-615	-1.14
R-620	2.97	R-620	2.20	R-620	-1.14	R-620	-1.14
R-625	2.97	R-625	2.20	R-625	-1.14	R-625	-1.14
R-630	2.97	R-630	2.20	R-630	-1.14	R-630	-1.14
R-635	2.97	R-635	2.20	R-635	-1.14	R-635	-1.14
R-640	2.97	R-640	2.20	R-640	-1.14	R-640	-1.14
R-645	2.97	R-645	2.20	R-645	-1.14	R-645	-1.14
R-650	2.97	R-650	2.20	R-650	-1.14	R-650	-1.14
R-655	2.97	R-655	2.20	R-655	-1.14	R-655	-1.14
R-660	2.97	R-660	2.20	R-660	-1.14	R-660	-1.14
R-665	2.97	R-665	2.20	R-665	-1.14	R-665	-1.14
R-670	2.97	R-670	2.20	R-670	-1.14	R-670	-1.14
R-675	2.97	R-675	2.20	R-675	-1.14	R-675	-1.14
R-680	2.97	R-680	2.20	R-680	-1.14	R-680	-1.14
R-685	2.97	R-685	2.20	R-685	-1.14	R-685	-1.14
R-690	2.97	R-690	2.20	R-690	-1.14	R-690	-1.14
R-695	2.97	R-695	2.20	R-695	-1.14	R-695	-1.14
R-700	2.97	R-700	2.20	R-700	-1.14	R-700	-1.14
R-705	2.97	R-705	2.20	R-705	-1.14	R-705	-1.14
R-710	2.97	R-710	2.20	R-710	-1.14	R-710	-1.14
R-715	2.97	R-715	2.20	R-715	-1.14	R-715	-1.14
R-720	2.97	R-720	2.20	R-720	-1.14	R-720	-1.14
R-725	2.97	R-725	2.20	R-725	-1.14	R-725	-1.14
R-730	2.97	R-730	2.20	R-730	-1.14	R-730	-1.14
R-735	2.97	R-735	2.20	R-735	-1.14	R-735	-1.14
R-740	2.97	R-740	2.20	R-740	-1.14	R-740	-1.14
R-745	2						

Medford OR	WYEC	One Story Prototype Siding	Series Two	Cooling Load	
		Heating Load		Delta Component	Delta Component
				(MBtu)	(MBtu)
				(/sf)	(/sf)
		R-0	28.06	R-0	7.93
		R-7	-25.80	R-7	-7.34
		R-11	-29.92	R-11	-8.51
		R-19	-33.62	R-19	-9.56
		R-22	-35.10	R-22	-9.96
		R-30	-37.08	R-30	-10.50
		R-38	-38.27	R-38	-10.82
		R-49	-39.29	R-49	-11.12
		R-60	-39.94	R-60	-11.32
		Slope(DD)	5830.59	Slope(DD)	1606.92
		Curve(DDS)	-185.269	Curve(DDS)	-45.560
		Slab		Slab	
		Heated Basement	(/ft)	Heated Basement	(/ft)
		R-0	-10.14	R-0	-4.11
		R-5	-15.19	R-5	-3.80
		R-10	-16.87	R-10	-3.66
		R-15	-18.05	R-15	-3.74
		R-20	-19.31	R-20	-3.56
		Intercept	58.895	Intercept	-20.700
		Slope(DD)	7296.29	Slope(DD)	-658.27
		Curve(DDS)	-108.274	Curve(DDS)	17.164
		Unheated Basement	(/sf)	Unheated Basement	(/sf)
		R-0	-5.49	R-0	-2.70
		R-11	-19.24	R-11	-1.21
		R-19	-22.93	R-19	-1.84
		R-30	-25.31	R-30	-1.61
		Intercept	.542	Intercept	-.164
		Slope(DD)	5584.08	Slope(DD)	-538.14
		Curve(DDS)	-442.862	Curve(DDS)	38.128
		Infiltration	(/sf flr)	Infiltration	(/sf flr)
		Window U-value		Window U-value	
		ELF Ach		ELF Ach	
		.0007(.58)	.00	.0007(.43)	.00
		.0005(.42)	-5.30	.0005(.30)	-.22
		.0003(.26)	-10.01	.0003(.18)	-.44
		Slope/.001ELF	11.461	Slope/.001ELF	.714
		Curve/.001ELF	4.789	Curve/.001ELF	.000
		Base Load =	125.13 MBtu	Base Load =	21.60 MBtu
		Typical Load =	48.34 MBtu	Typical Load =	9.95 MBtu
		Residual Load =	-4.54 MBtu	Residual Load =	-.27 MBtu

Medford OR

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Mid Town

Prototype Siding

Series Two

Heating Load

Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	29.45	R-0	.00	8.05
R-7	-10.83	11.40	R-7	-2.82	3.34
R-11	-12.56	8.52	R-11	-3.27	2.59
R-19	-14.11	5.93	R-19	-3.68	1.91
R-22	-14.67	5.01	R-22	-3.85	1.63
R-30	-15.41	3.77	R-30	-4.08	1.24
R-38	-15.86	3.02	R-38	-4.22	1.01
R-49	-16.23	2.40	R-49	-4.35	.79
R-60	-16.47	2.00	R-60	-4.44	.65
Slope(DD)	5451.54		Slope(DD)	1820.31	
Curve(DDS)	-81.643		Curve(DDS)	-78.121	
Slab			Slab		
R-0	-5.77	138.92	R-0	-1.59	45.21
R-5 2ft	-6.97	108.92	R-5 2ft	-1.49	42.71
R-5 4ft	-7.33	99.92	R-5 4ft	-1.44	41.46
R-10 2ft	-7.16	104.17	R-10 2ft	-1.47	42.21
R-10 4ft	-7.63	92.42	R-10 4ft	-1.40	40.46
Intercept	70.850		Intercept	-36.636	
Slope(DD)	5716.81		Slope(DD)	-1123.92	
Curve(DDS)	-31.726		Curve(DDS)	35.502	
Unheated Basement			Unheated Basement		
R-0	-4.05	12.13	R-0	-1.00	2.03
R-11 flr	-7.28	6.74	R-11 flr	-1.16	1.16
R-19 flr	-8.33	5.00	R-19 flr	-1.34	.93
R-30 flr	-9.00	3.88	R-30 flr	-1.25	.78
Intercept	.785		Intercept	-380	
Slope(DD)	4242.08		Slope(DD)	-543.36	
Curve(DDS)	-395.904		Curve(DDS)	43.183	
Infiltration			Infiltration		
ELF Ach			ELF Ach		
.0007(.58)	.00	9.10	.0007(.43)	.00	.36
.0005(.43)	-3.97	5.79	.0005(.30)	-.15	.24
.0003(.25)	-7.26	3.05	.0003(.18)	-.28	.13
Slope/.001ELF	8.041		Slope/.001ELF	.375	
Curve/.001ELF	7.084		Curve/.001ELF	.208	
Window U-value			Window U-value		
1-Pane	.00	83.59	1-Pane	.00	1.60
2-Pane	-7.21	33.52	2-Pane	-.16	.48
3-Pane	-9.02	20.98	3-Pane	-.19	.29
R-10	-11.14	6.23	R-10	-.22	.07
Slope(DD)	2596.27		Slope(DD)	25.74	
Curve(DDS)	21.587		Curve(DDS)	1.314	
Base Load =	56.90 MBtu		Base Load =	13.28 MBtu	
Typical Load =	24.00 MBtu		Typical Load =	8.62 MBtu	
Residual Load =	.14 MBtu		Residual Load =	2.91 MBtu	

Medford OR	WYEC	MApartment Prototype Siding		Series Two	Cooling Load				
		Heating Load			Delta Component (KBtu)		Delta Component (KBtu)		
		Delta Component (MBtu)		Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
		Ceiling		Wall		Ceiling		Wall	
R-0	.00	29.15	.00	R-0	7.96	R-0	.00	R-0	3.57
R-7	-10.82	11.11	-4.32	R-7	3.28	R-7	-2.81	R-7	1.81
R-11	-12.55	8.23	-4.94	R-11	2.53	R-11	-3.26	R-11	.63
R-19	-14.10	5.64	-5.63	R-19	1.86	R-19	-3.66	R-19	1.58
R-22	-14.64	4.75	-5.97	R-22	1.58	R-22	-3.83	R-22	.81
R-30	-15.35	3.56	-6.50	R-30	1.20	R-30	-4.06	R-30	.75
R-38	-15.78	2.84	-6.82	R-38	.97	R-38	-4.20	R-38	.60
R-49	-16.13	2.27		R-49	.77	R-49	-4.32	R-49	.94
R-60	-16.35	1.90		R-60	.63	R-60	-4.39	R-60	
Slope(DD)		5132.42	4164.15	Slope(DD)		1759.90	Slope(DD)		761.05
Curve(DDS)		-36.417	85.086	Curve(DDS)		-70.394	Curve(DDS)		-18.107
Slab		(/ft)	(/ft)	Slab		(/ft)	Heated Basement		(/ft)
R-0	-6.63	166.22	-5.31	R-0	-1.07	-40.16	R-0	-80	-30.99
R-5	-7.61	133.55	-6.81	R-5	2ft	-1.00	R-5	4ft	-31.16
R-5	-7.93	123.05	-7.27	R-5	4ft	-.97	R-5	8ft	-31.16
R-10	-7.77	128.22	-7.13	R-10	2ft	-.99	R-10	4ft	-31.49
R-10	-8.18	114.55	-7.77	R-10	4ft	-.94	R-10	8ft	-30.99
Intercept		88.696	Intercept	Intercept	-32.871	Intercept	Intercept	Intercept	-30.427
Slope(DD)		6971.56	Slope(DD)	Slope(DD)	-852.86	Slope(DD)	Slope(DD)	Slope(DD)	-68.81
Curve(DDS)		-72.046	Curve(DDS)	Curve(DDS)	22.170	Curve(DDS)	Curve(DDS)	Curve(DDS)	1.307
Unheated Basement		(/sf)	(/sf)	Unheated Basement		(/sf)	Crawl		(/sf)
R-0	-5.31	10.50	.00	R-0	-.80	-1.55	R-0		-.22
R-11	-7.99	6.04	-7.76	R-11	f1r	-.42	R-11	f1r	.16
R-19	-8.90	4.52	-9.03	R-19	f1r	-.30	R-19	f1r	.15
R-30	-9.49	3.54	-9.78	R-30	f1r	-.21	R-30	f1r	.15
R-38			-9.95	R-38	f1r		R-38	f1r	.15
R-49			-10.45	R-49	f1r		R-49	f1r	.15
Intercept		.838	Intercept	Intercept	-.205	Intercept	Intercept	Intercept	.00
Slope(DD)		3721.73	Slope(DD)	Slope(DD)	-506.95	Slope(DD)	Slope(DD)	Slope(DD)	68.72
Curve(DDS)		-358.234	Curve(DDS)	Curve(DDS)	47.737	Curve(DDS)	Curve(DDS)	Curve(DDS)	-21.626
Infiltration		(/sf f1r)	(/sf)	Infiltration		(/sf f1r)	Window U-value		(/sf)
ELF Ach			ELF Ach	.0007(.43)	.00	.40	1-Pane	.00	2.41
.0007(.58)	8.83	.00	82.30	.0005(.30)	-.17	.26	2-Pane	-.19	1.09
.0005(.43)	-3.94	5.55	31.82	.0003(.18)	-.32	.14	3-Pane	-.25	.69
.0003(.25)	-7.15	2.88	19.83				R-10	-.32	.22
R-10	-11.03	5.74							
Slope/.001ELF		7.333	Slope(DD)	Slope/.001ELF	.396	Slope(DD)	Slope(DD)	Slope(DD)	93.52
Curve/.001ELF		7.552	Curve(DDS)	Curve/.001ELF	.260	Curve(DDS)	Curve(DDS)	Curve(DDS)	-.089
Base Load =		52.96 MBtu		Base Load =		11.26 MBtu	Typical Load =		6.96 MBtu
Typical Load =		22.22 MBtu		Typical Load =		6.96 MBtu	Residual Load =		1.36 MBtu
Residual Load =		.62 MBtu		Residual Load =		1.36 MBtu			

Memphis TN	TMY	One Story Prototype Siding	Series Two	Cooling Load
		Heating Load		
Delta Component (MBtu)		Delta Component (MBtu)	Delta Component (MBtu)	Delta Component (KBTu)
Ceiling	(/sf)	Wall	Ceiling	Wall
R-0	.00	R-0	R-0	R-0
R-7	17.73	R-7	R-7	R-7
R-11	-16.40	R-11	R-11	R-11
R-19	-19.02	R-13	R-19	R-13
R-22	-21.37	R-19	R-22	R-19
R-30	-22.28	R-27	R-30	R-27
R-38	-23.50	R-34	R-38	R-34
R-49	-24.23		R-49	
R-60	-24.88		R-60	
	1.30			
Slope(DD)	3600.04	Slope(DD)	Slope(DD)	1008.18
Curve(DDS)	-102.808	Curve(DDS)	Curve(DDS)	-25.919
Slab		Heated Basement	Slab	Heated Basement
R-0	-11.41	R-0	R-0	R-0
R-5	43.90	R-5	R-5	R-5
R-11	25.17	R-11	R-11	R-11
R-13	19.33	R-13	R-13	R-13
R-19	15.49	R-19	R-19	R-19
R-22	22.10	R-22	R-22	R-22
R-30	15.03	R-30	R-30	R-30
R-38	14.45	R-38	R-38	R-38
Intercept	.000	Intercept	Intercept	Intercept
Slope(DD)	3824.72	Slope(DD)	Slope(DD)	Slope(DD)
Curve(DDS)	-27.226	Curve(DDS)	Curve(DDS)	Curve(DDS)
Unheated Basement		Crawl	Unheated Basement	Crawl
R-0	-7.69	R-0	R-0	R-0
R-11	7.15	R-11	R-11	R-11
R-13	2.12	R-13	R-13	R-13
R-19	17.43	R-19	R-19	R-19
R-30	18.71	R-30	R-30	R-30
R-38	-.01	R-38	R-38	R-38
R-49		R-49	R-49	R-49
Intercept	-2.216	Intercept	Intercept	Intercept
Slope(DD)	2984.60	Slope(DD)	Slope(DD)	Slope(DD)
Curve(DDS)	-225.916	Curve(DDS)	Curve(DDS)	Curve(DDS)
Infiltration		Window U-value	Infiltration	Window U-value
ELF Ach		1-Pane	ELF Ach	1-Pane
.0007(.78)	.00	2-Pane	.0007(.47)	2-Pane
.0005(.57)	9.41	3-Pane	.0005(.34)	3-Pane
.0003(.34)	6.57	R-10	.0003(.20)	R-10
	3.85			
Slope/.001ELF	12.370	Slope(DD)	Slope/.001ELF	Slope(DD)
Curve/.001ELF	1.542	Curve(DDS)	Curve/.001ELF	Curve(DDS)
Base Load =	85.92 MBtu	Base Load =	Base Load =	40.70 MBtu
Typical Load =	34.98 MBtu	Typical Load =	Typical Load =	18.70 MBtu
Residual Load =	.88 MBtu	Residual Load =	Residual Load =	1.25 MBtu

Memphis TN	TMY	Mid Town	Prototype Siding	Series Two	Cooling Load			
					Heating Load			
					Delta Component		Delta Component	
					(MBtu)		(KBtu)	
					Ceiling		Wall	
					R-0		R-0	
					R-7		R-7	
					R-11		R-11	
					R-13		R-13	
					R-19		R-19	
					R-22		R-22	
					R-30		R-30	
					R-38		R-38	
					R-49		R-49	
					R-60		R-60	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Slab		Heated Basement	
					R-0		R-0	
					R-5		R-5	
					R-10		R-10	
					R-10 4ft		R-10 4ft	
					Intercept		Intercept	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Unheated Basement		Crawl	
					R-0		R-0	
					R-11 flr		R-11 flr	
					R-19 flr		R-19 flr	
					R-30 flr		R-30 flr	
					R-38 flr		R-38 flr	
					R-49 flr		R-49 flr	
					Intercept		Intercept	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Infiltration		Window U-value	
					ELF Ach		ELF Ach	
					1-Pane		1-Pane	
					2-Pane		2-Pane	
					3-Pane		3-Pane	
					R-10		R-10	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Base Load =		Base Load =	
					Typical Load =		Typical Load =	
					Residual Load =		Residual Load =	

Memphis TN	TMY	Mid Town	Prototype Siding	Series Two	Cooling Load			
					Heating Load			
					Delta Component		Delta Component	
					(MBtu)		(KBtu)	
					Ceiling		Wall	
					R-0		R-0	
					R-7		R-7	
					R-11		R-11	
					R-13		R-13	
					R-19		R-19	
					R-22		R-22	
					R-30		R-30	
					R-38		R-38	
					R-49		R-49	
					R-60		R-60	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Slab		Heated Basement	
					R-0		R-0	
					R-5		R-5	
					R-10		R-10	
					R-10 4ft		R-10 4ft	
					Intercept		Intercept	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Unheated Basement		Crawl	
					R-0		R-0	
					R-11 flr		R-11 flr	
					R-19 flr		R-19 flr	
					R-30 flr		R-30 flr	
					R-38 flr		R-38 flr	
					R-49 flr		R-49 flr	
					Intercept		Intercept	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Infiltration		Window U-value	
					ELF Ach		ELF Ach	
					1-Pane		1-Pane	
					2-Pane		2-Pane	
					3-Pane		3-Pane	
					R-10		R-10	
					Slope(DD)		Slope(DD)	
					Curve(DDS)		Curve(DDS)	
					Base Load =		Base Load =	
					Typical Load =		Typical Load =	
					Residual Load =		Residual Load =	

Memphis TN	TMY	MApartment Prototype Siding	Series Two	Cooling Load
		Heating Load		
Delta Component		Delta Component	Delta Component	Delta Component
(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)
Ceiling	Wall	Ceiling	Wall	
R-0	R-0	R-0	R-0	R-0
R-7	R-7	R-7	R-7	R-7
R-11	R-11	R-11	R-11	R-11
R-19	R-19	R-19	R-19	R-19
R-22	R-22	R-22	R-22	R-22
R-30	R-30	R-30	R-30	R-30
R-38	R-38	R-38	R-38	R-38
R-49	R-49	R-49	R-49	R-49
R-60	R-60	R-60	R-60	R-60
Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
Slab	Heated Basement	Slab	Heated Basement	Heated Basement
R-0	R-0	R-0	R-0	R-0
R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	R-5 4ft
R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	R-5 8ft
R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	R-10 4ft
R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	R-10 8ft
Intercept	Intercept	Intercept	Intercept	Intercept
Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
Unheated Basement	Crawl	Unheated Basement	Crawl	Crawl
R-0	R-0	R-0	R-0	R-0
R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr
R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr
R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr
R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr
R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr
Intercept	Intercept	Intercept	Intercept	Intercept
Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
Infiltration	Window U-value	Infiltration	Window U-value	Window U-value
ELF Ach	1-Pane	ELF Ach	1-Pane	1-Pane
.0007(.79)	2-Pane	.0007(.47)	2-Pane	2-Pane
.0005(.56)	3-Pane	.0005(.34)	3-Pane	3-Pane
.0003(.34)	R-10	.0003(.20)	R-10	R-10
Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)	Slope(DD)
Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)	Curve(DDS)
7.208	1631.43	2.729	Slope(DD)	-447.53
5.209	29.282	.833	Curve(DDS)	13.406
Base Load =	38.51 MBtu	Base Load =	25.45 MBtu	
Typical Load =	15.85 MBtu	Typical Load =	17.57 MBtu	
Residual Load =	2.52 MBtu	Residual Load =	8.18 MBtu	

Miami FL	WYEC	One Story	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (MBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Wall (/sf)	
						R-0		R-0	
						R-7		R-7	
						R-11		R-11	
						R-13		R-13	
						R-19		R-19	
						R-22		R-22	
						R-30		R-30	
						R-38		R-38	
						R-49		R-49	
						R-60		R-60	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Slab (/ft)		Heated Basement (/ft)	
						R-0		R-0	
						R-5 2ft		R-5 4ft	
						R-5 4ft		R-5 8ft	
						R-10 2ft		R-10 4ft	
						R-10 4ft		R-10 8ft	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Unheated Basement (/sf)		Crawl (/sf)	
						R-0		R-0	
						R-11 flr		R-11 flr	
						R-19 flr		R-19 flr	
						R-30 flr		R-30 flr	
						R-38 flr		R-38 flr	
						R-49 flr		R-49 flr	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Infiltration (/sf flr)		Window U-value (/sf)	
						ELF Ach		1-Pane	
						.0007(.59)		2-Pane	
						.0005(.42)		3-Pane	
						.0003(.25)		R-10	
						Slope/.001ELF		Slope(DD)	
						Curve/.001ELF		Curve(DDS)	
						Base Load =		Base Load =	
						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	

Miami FL	WYEC	Mid Town	Prototype	Siding	Series Two	Cooling Load			
					Heating Load				
					Delta Component				
					Delta Component				
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Miami FL	WYEC	MApartment Prototype Siding	Series Two	Heating Load				Cooling Load			
				Delta Component (MBtu)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)	
				Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
				R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
				R-7	R-7	R-7	R-7	R-7	R-7	R-7	R-7
				R-11	R-11	R-11	R-11	R-11	R-11	R-11	R-11
				R-19	R-19	R-19	R-19	R-19	R-19	R-19	R-19
				R-22	R-22	R-22	R-22	R-22	R-22	R-22	R-22
				R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30
				R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38
				R-49	R-49	R-49	R-49	R-49	R-49	R-49	R-49
				R-60	R-60	R-60	R-60	R-60	R-60	R-60	R-60
				Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
				Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
				Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement
				R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
				R-5	R-5	R-5	R-5	R-5	R-5	R-5	R-5
				R-10	R-10	R-10	R-10	R-10	R-10	R-10	R-10
				R-15	R-15	R-15	R-15	R-15	R-15	R-15	R-15
				R-20	R-20	R-20	R-20	R-20	R-20	R-20	R-20
				R-25	R-25	R-25	R-25	R-25	R-25	R-25	R-25
				R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30
				R-35	R-35	R-35	R-35	R-35	R-35	R-35	R-35
				R-40	R-40	R-40	R-40	R-40	R-40	R-40	R-40
				R-45	R-45	R-45	R-45	R-45	R-45	R-45	R-45
				R-50	R-50	R-50	R-50	R-50	R-50	R-50	R-50
				R-55	R-55	R-55	R-55	R-55	R-55	R-55	R-55
				R-60	R-60	R-60	R-60	R-60	R-60	R-60	R-60
				Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
				Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
				Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl
				R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
				R-5	R-5	R-5	R-5	R-5	R-5	R-5	R-5
				R-10	R-10	R-10	R-10	R-10	R-10	R-10	R-10
				R-15	R-15	R-15	R-15	R-15	R-15	R-15	R-15
				R-20	R-20	R-20	R-20	R-20	R-20	R-20	R-20
				R-25	R-25	R-25	R-25	R-25	R-25	R-25	R-25
				R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30
				R-35	R-35	R-35	R-35	R-35	R-35	R-35	R-35
				R-40	R-40	R-40	R-40	R-40	R-40	R-40	R-40
				R-45	R-45	R-45	R-45	R-45	R-45	R-45	R-45
				R-50	R-50	R-50	R-50	R-50	R-50	R-50	R-50
				R-55	R-55	R-55	R-55	R-55	R-55	R-55	R-55
				R-60	R-60	R-60	R-60	R-60	R-60	R-60	R-60
				Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
				Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
				Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value
				ELF Ach	1-Pane	ELF Ach	1-Pane	ELF Ach	1-Pane	ELF Ach	1-Pane
				.0007(.59)	.00	.0007(.56)	.00	.0007(.56)	.00	.0007(.56)	.00
				.0005(.42)	.35	.0005(.40)	.35	.0005(.40)	.35	.0005(.40)	.35
				.0003(.25)	.03	.0003(.25)	.03	.0003(.25)	.03	.0003(.25)	.03
				Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)
				Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)
				-146	48.99	-146	48.99	-146	48.99	-146	48.99
				.833	3.067	.833	3.067	.833	3.067	.833	3.067
				Base Load =	2.88 MBtu	Base Load =	2.88 MBtu	Base Load =	2.88 MBtu	Base Load =	2.88 MBtu
				Typical Load =	.82 MBtu	Typical Load =	.82 MBtu	Typical Load =	.82 MBtu	Typical Load =	.82 MBtu
				Residual Load =	.16 MBtu	Residual Load =	.16 MBtu	Residual Load =	.16 MBtu	Residual Load =	.16 MBtu
				Base Load =	50.09 MBtu	Base Load =	50.09 MBtu	Base Load =	50.09 MBtu	Base Load =	50.09 MBtu
				Typical Load =	39.80 MBtu	Typical Load =	39.80 MBtu	Typical Load =	39.80 MBtu	Typical Load =	39.80 MBtu
				Residual Load =	19.98 MBtu	Residual Load =	19.98 MBtu	Residual Load =	19.98 MBtu	Residual Load =	19.98 MBtu

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	43.75	R-7	23.67	R-7	3.96	R-7	1.17
R-11	17.53	R-11	27.04	R-11	4.59	R-11	1.34
R-19	13.35	R-19	31.19	R-19	5.16	R-19	1.62
R-22	9.59	R-22	33.24	R-22	5.40	R-22	1.76
R-30	8.12	R-30	37.04	R-30	5.72	R-30	1.97
R-38	6.16	R-38	39.37	R-38	5.91	R-38	1.97
R-49	4.98	R-49	61.34	R-49	6.09	R-49	2.10
R-60	3.92	R-60	62.39	R-60	6.21	R-60	2.10
R-60	3.23	R-60	62.39	R-60	6.21	R-60	2.10

Slope(DD)	8972.33	Slope(DD)	8655.96	Slope(DD)	978.14	Slope(DD)	580.36
Curve(DDS)	-268.763	Curve(DDS)	-170.145	Curve(DDS)	-40.346	Curve(DDS)	-27.913

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slab		Heated Basement		Slab		Heated Basement	
R-0	26.96	R-0	15.41	R-0	4.80	R-0	3.34
R-5	34.00	R-5	22.70	R-5	4.66	R-5	3.92
R-10	36.07	R-10	25.32	R-10	4.63	R-10	3.92
R-15	11.27	R-15	24.64	R-15	4.48	R-15	4.04
R-20	15.85	R-20	28.74	R-20	4.31	R-20	4.08
R-25	1.74	R-25	55.43	R-25	3.18	R-25	3.75
R-30	38.23	R-30	580.95	R-30	718.93	R-30	37.95
R-35	11487.25	R-35	-60.331	R-35	32.049	R-35	2.199
R-40	-203.604	R-40	-60.331	R-40	32.049	R-40	2.199

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	15.41	R-0	15.41	R-0	3.34	R-0	3.34
R-5	34.00	R-5	22.70	R-5	4.66	R-5	3.92
R-10	36.07	R-10	25.32	R-10	4.63	R-10	3.92
R-15	11.27	R-15	24.64	R-15	4.48	R-15	4.04
R-20	15.85	R-20	28.74	R-20	4.31	R-20	4.08
R-25	1.74	R-25	55.43	R-25	3.18	R-25	3.75
R-30	38.23	R-30	580.95	R-30	718.93	R-30	37.95
R-35	11487.25	R-35	-60.331	R-35	32.049	R-35	2.199
R-40	-203.604	R-40	-60.331	R-40	32.049	R-40	2.199

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Infiltration		Window U-value		Infiltration		Window U-value	
R-0	15.41	R-0	15.41	R-0	3.34	R-0	3.34
R-5	34.00	R-5	22.70	R-5	4.66	R-5	3.92
R-10	36.07	R-10	25.32	R-10	4.63	R-10	3.92
R-15	11.27	R-15	24.64	R-15	4.48	R-15	4.04
R-20	15.85	R-20	28.74	R-20	4.31	R-20	4.08
R-25	1.74	R-25	55.43	R-25	3.18	R-25	3.75
R-30	38.23	R-30	580.95	R-30	718.93	R-30	37.95
R-35	11487.25	R-35	-60.331	R-35	32.049	R-35	2.199
R-40	-203.604	R-40	-60.331	R-40	32.049	R-40	2.199

Slope/.001ELF	38.020	Slope/.001ELF	8765.87	Slope/.001ELF	.812	Slope(DD)	72.65
Curve/.001ELF	.730	Curve(DDS)	-44.031	Curve/.001ELF	.325	Curve(DDS)	-.257

Base Load = 228.00 MBtu
Typical Load = 81.21 MBtu
Residual Load = 11.24 MBtu

Base Load = 15.99 MBtu
Typical Load = 3.86 MBtu
Residual Load = -3.20 MBtu

Minneapolis MN WYEC Mid Town Prototype Siding Series Two			Heating Load			Cooling Load		
Delta Component (MBtu)			Delta Component (KBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)			Wall (/sf)		
R-0	.00	45.92	R-0	.00	41.22	R-0	.00	4.19
R-7	-16.78	17.96	R-7	-10.18	19.86	R-7	-1.49	1.71
R-11	-19.45	13.49	R-11	-11.63	16.81	R-11	-1.73	1.31
R-19	-21.86	9.48	R-13	-13.35	13.21	R-19	-1.94	.95
R-22	-22.74	8.02	R-19	-14.20	11.42	R-22	-2.03	.81
R-30	-23.91	6.02	R-27	-15.73	8.21	R-30	-2.14	.62
R-38	-24.62	4.88	R-34	-16.67	6.24	R-38	-2.21	.50
R-49	-25.24	3.85				R-49	-2.28	.39
R-60	-25.64	3.18				R-60	-2.32	.32
Slope(DD) 8771.15			Slope(DD) 8103.33			Slope(DD) 900.75		
Curve(DDS) -173.100			Curve(DDS) -81.751			Curve(DDS) -32.816		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)		
R-0	-13.16	71.82	R-0	-9.18	171.32	R-0	-1.91	-11.49
R-5 2ft	-14.92	27.81	R-5 4ft	-11.78	106.32	R-5 2ft	-1.82	-9.24
R-5 4ft	-15.42	15.31	R-5 8ft	-12.56	86.82	R-5 4ft	-1.77	-7.99
R-10 2ft	-15.24	19.81	R-10 4ft	-12.41	90.57	R-10 2ft	-1.81	-8.99
R-10 4ft	-15.93	2.57	R-10 8ft	-13.54	62.32	R-10 4ft	-1.74	-7.24
Intercept	-33.041		Intercept	.000		Intercept	-3.642	
Slope(DD)	10890.37		Slope(DD)	6330.01		Slope(DD)	-1191.04	
Curve(DDS)	-153.419		Curve(DDS)	-51.470		Curve(DDS)	44.184	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)		
R-0	-9.18	11.42	R-0	.00	26.72	R-0	-1.30	.25
R-11 flr	-14.24	2.99	R-11 flr	-13.73	3.84	R-11 flr	.44	1.68
R-19 flr	-16.00	.06	R-19 flr	-16.13	-1.16	R-19 flr	-1.16	2.15
R-30 flr	-17.13	-1.83	R-30 flr	-17.65	-2.70	R-30 flr	.02	2.45
Intercept	-7.078		R-38 flr	-18.00	-3.28	Intercept	3.278	
Slope(DD)	7227.34		R-49 flr	-19.00	-4.95	Slope(DD)	-1135.55	
Curve(DDS)	-705.891		Intercept	-8.811		Curve(DDS)	106.307	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			ELF Ach			ELF Ach		
.0007(.90)	.00	25.32	.0007(.61)	.00	188.72	.0007(.61)	.00	.64
.0005(.64)	-9.13	17.71	1-Pane	.00	188.72	.0005(.44)	-17	.50
.0003(.38)	-17.90	10.40	2-Pane	-14.63	87.12	.0003(.26)	-.38	.32
			3-Pane	-19.22	55.27			
			R-10	-24.61	17.82			
Slope/.001ELF 33.542			Slope(DD) 7617.25			Slope/.001ELF 1.208		
Curve/.001ELF 3.750			Curve(DDS) -17.756			Curve/.001ELF -.417		
Base Load = 111.71 MBtu			Slope(DD) 7617.25			Slope(DD) -106.00		
Typical Load = 37.35 MBtu			Curve(DDS) -17.756			Curve(DDS) 2.280		
Residual Load = 2.13 MBtu			Base Load = 111.71 MBtu			Typical Load = 6.58 MBtu		
			Typical Load = 6.58 MBtu			Residual Load = 2.38 MBtu		

Heating Load

Ceiling	Delta Component (MBtu)	(/sf)
R-0	.00	44.84
R-7	-16.42	17.46
R-11	-19.04	13.09
R-19	-21.40	9.17
R-22	-22.25	7.75
R-30	-23.40	5.84
R-38	-24.08	4.69
R-49	-24.67	3.72
R-60	-25.05	3.09

Slope(DD) 8455.97
Curve(DDS) -150.713

Slab	(/ft)
R-0	-14.38 89.71
R-5 2ft	-15.74 44.05
R-5 4ft	-16.15 30.55
R-10 2ft	-16.00 35.55
R-10 4ft	-16.56 16.88
Intercept	-22.241
Slope(DD)	12079.04
Curve(DDS)	-203.082

Unheated Basement (/sf)

R-0	-11.12 9.91
R-11 flr	-15.13 3.23
R-19 flr	-16.67 .66
R-30 flr	-17.66 -.99
Intercept	-5.646
Slope(DD)	6441.08
Curve(DDS)	-864.479

Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach			
.0007(.90)	.00	25.12	189.87
.0005(.64)	-9.13	17.52	86.61
.0003(.38)	-17.84	10.25	54.89

Slope/.001ELF 32.895
Curve/.001ELF 4.272

Base Load = 105.72 MBtu
Typical Load = 34.53 MBtu
Residual Load = 2.22 MBtu

Cooling Load

Ceiling	Delta Component (MBtu)	(/sf)
R-0	.00	3.99
R-7	-1.41	1.64
R-11	-1.64	1.26
R-19	-1.84	.93
R-22	-1.93	.77
R-30	-2.06	.57
R-38	-2.13	.44
R-49	-2.17	.38
R-60	-2.20	.34

Slope(DD) 865.40
Curve(DDS) -32.341

Slab	(/ft)
R-0	-1.38 -5.59
R-5 2ft	-1.33 -3.92
R-5 4ft	-1.32 -3.42
R-10 2ft	-1.33 -3.75
R-10 4ft	-1.28 -2.25
Intercept	.933
Slope(DD)	-1117.83
Curve(DDS)	47.972

Unheated Basement (/sf)

R-0	-1.07 .25
R-11 flr	-.38 1.40
R-19 flr	-.16 1.77
R-30 flr	-.02 2.00
Intercept	2.649
Slope(DD)	-884.10
Curve(DDS)	81.319

Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach			
.0007(.61)	.00	.32	1-Pane .00 -1.54
.0005(.44)	-.19	.17	2-Pane -.00 -1.58
.0003(.26)	-.31	.06	3-Pane .07 -1.05

Slope/.001ELF .021
Curve/.001ELF .625

Base Load = 9.61 MBtu
Typical Load = 5.68 MBtu
Residual Load = 2.12 MBtu

Heating Load

Delta Component			Delta Component			Delta Component		
(MBtu)			(MBtu)			(MBtu)		
Ceiling			Wall			Ceiling		
(/sf)			(/sf)			(/sf)		
R-0	.00	20.05	R-0	.00	18.67	R-0	.00	8.25
R-7	-18.48	8.05	R-7	-10.63	9.22	R-7	-7.60	3.32
R-11	-21.43	6.14	R-11	-12.14	7.87	R-11	-8.81	2.53
R-19	-24.08	4.41	R-13	-14.03	6.19	R-19	-9.90	1.82
R-22	-25.12	3.74	R-19	-14.96	5.36	R-22	-10.33	1.54
R-30	-26.51	2.84	R-27	-16.63	3.87	R-30	-10.90	1.17
R-38	-27.35	2.29	R-34	-17.66	2.96	R-38	-11.24	.95
R-49	-28.10	1.81				R-49	-11.56	.75
R-60	-28.58	1.49				R-60	-11.76	.61
Slope(DD)			Slope(DD)			Slope(DD)		
Curve(DDS)			Curve(DDS)			Curve(DDS)		
4135.22			3861.13			1707.97		
-127.039			-72.401			-53.389		
Slab			Heated Basement			Slab		
(/ft)			(/ft)			(/ft)		
R-0	-12.54	54.09	R-0	-8.27	79.81	R-0	-6.89	-5.71
R-5	-16.17	32.22	R-5	-12.14	58.50	R-5	-6.87	-5.59
R-5	-17.38	24.93	R-5	-13.63	47.52	R-5	-6.67	-4.38
R-10	-16.79	28.49	R-10	-13.13	50.53	R-10	-6.85	-5.47
R-10	-18.39	18.85	R-10	-15.40	36.86	R-10	-6.60	-3.96
Intercept	.000		Intercept	7.685		Intercept	.000	
Slope(DD)	4953.52		Slope(DD)	2772.52		Slope(DD)	-1202.22	
Curve(DDS)	-58.774		Curve(DDS)	-25.374		Curve(DDS)	58.852	
Unheated Basement			Crawl			Unheated Basement		
(/sf)			(/sf)			(/sf)		
R-0	-8.27	8.60	R-0	.00	13.97	R-0	-3.52	1.57
R-11	-17.72	2.47	R-11	-17.66	2.51	R-11	-.83	3.32
R-19	-20.25	.83	R-19	-20.62	.58	R-19	-.17	3.75
R-30	-21.87	-.23	R-30	-22.43	-.59	R-30	.26	4.03
Intercept	-3.042		R-38	-22.84	-.86	Intercept	4.755	
Slope(DD)	3812.59		R-49	-24.03	-1.63	Slope(DD)	-979.40	
Curve(DDS)	-300.656		Intercept	-3.429		Curve(DDS)	69.992	
Infiltration			Window U-value			Infiltration		
(/sf flr)			(/sf)			(/sf flr)		
ELF Ach			ELF Ach			ELF Ach		
.0007(.75)	.00	11.58	.0007(.41)	.00	88.77	.0007(.41)	.00	1.95
.0005(.56)	-5.27	8.16	.0005(.29)	-8.60	42.23	.0005(.29)	-.86	1.40
.0003(.33)	-10.40	4.83	.0003(.18)	-11.44	26.87	.0003(.18)	-1.72	.84
Slope/.001ELF	15.747		R-10	-14.78	8.79	Slope/.001ELF	2.792	
Curve/.001ELF	1.136		Slope(DD)	3775.14		Curve/.001ELF	-.000	
			Curve(DDS)	-15.629				
Base Load = 100.98 MBtu			Base Load = 34.35 MBtu			Base Load = 34.35 MBtu		
Typical Load = 43.32 MBtu			Typical Load = 14.09 MBtu			Typical Load = 14.09 MBtu		
Residual Load = .86 MBtu			Residual Load = -.30 MBtu			Residual Load = -.30 MBtu		

Cooling Load

Heating Load

Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)		Delta Component (KBtu)	Delta Component (MBtu)		Delta Component (KBtu)
Ceiling		(/sf)	Ceiling		(/sf)
R-0	.00	21.91	R-0	.00	7.90
R-7	-8.07	8.45	R-7	-2.92	3.02
R-11	-9.36	6.30	R-11	-3.39	2.25
R-19	-10.52	4.37	R-19	-3.81	1.55
R-22	-10.93	3.69	R-22	-3.97	1.29
R-30	-11.48	2.77	R-30	-4.17	.94
R-38	-11.81	2.22	R-38	-4.30	.73
R-49	-12.08	1.77	R-49	-4.37	.62
R-60	-12.26	1.47	R-60	-4.41	.55
Slope(DD)		4008.21	Slope(DD)		1396.70
Curve(DDS)		-52.878	Curve(DDS)		-10.921
Heated Basement		(/ft)	Heated Basement		(/ft)
R-0	-6.16	45.17	R-0	-2.61	-5.02
R-5 2ft	-7.02	23.67	R-5 2ft	-2.58	-3.77
R-5 4ft	-7.26	17.67	R-5 4ft	-2.53	-3.02
R-10 2ft	-7.15	20.42	R-10 2ft	-2.56	-3.77
R-10 4ft	-7.45	12.92	R-10 4ft	-2.51	-2.52
Intercept	.000		Intercept	.000	
Slope(DD)	3115.17		Slope(DD)	-733.86	
Curve(DDS)	30.164		Curve(DDS)	26.753	
Unheated Basement		(/sf)	Unheated Basement		(/sf)
R-0	-4.69	5.46	R-0	-1.25	1.93
R-11 flr	-6.91	1.76	R-11 flr	-.12	3.82
R-19 flr	-7.59	.63	R-19 flr	.13	4.23
R-30 flr	-8.03	-.11	R-30 flr	.29	4.50
R-38 flr			R-38 flr		
R-49 flr			R-49 flr		
Intercept	-2.102		Intercept	5.184	
Slope(DD)	2730.63		Slope(DD)	-913.48	
Curve(DDS)	-244.868		Curve(DDS)	54.481	
Infiltration		(/sf flr)	Infiltration		(/sf flr)
ELF Ach			ELF Ach		
.0007(.78)	.00	10.03	.0007(.44)	.00	1.79
.0005(.56)	-3.95	6.73	.0005(.31)	-.60	1.29
.0003(.35)	-7.49	3.78	.0003(.19)	-1.21	.78
Slope/.001ELF		11.333	Slope/.001ELF		2.625
Curve/.001ELF		4.271	Curve/.001ELF		-.104
Base Load = 48.31 MBtu			Base Load = 22.91 MBtu		
Typical Load = 21.35 MBtu			Typical Load = 14.90 MBtu		
Residual Load = 1.12 MBtu			Residual Load = 6.75 MBtu		
Window U-value		(/sf)	Window U-value		(/sf)
1-Pane	.00	77.65	1-Pane	.00	-6.17
2-Pane	-6.61	31.75	2-Pane	.07	-5.68
3-Pane	-8.31	19.91	3-Pane	.35	-3.76
R-10	-10.32	5.98	R-10	.67	-1.51
Slope(DD)		2505.60	Slope(DD)		-683.30
Curve(DDS)		16.505	Curve(DDS)		17.036

Nashville TN	WYEC	MApartment Prototype Siding	Series Two	Heating Load			Cooling Load		
				Delta Component			Delta Component		
				(MBtu)			(MBtu)		
				Ceiling			Ceiling		
				R-0			R-0		
				R-7			R-7		
				R-11			R-11		
				R-19			R-19		
				R-22			R-22		
				R-30			R-30		
				R-38			R-38		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Slab			Slab		
				R-0			R-0		
				R-5			R-5		
				R-10			R-10		
				R-15			R-15		
				R-20			R-20		
				R-25			R-25		
				R-30			R-30		
				R-35			R-35		
				R-40			R-40		
				R-45			R-45		
				R-50			R-50		
				R-55			R-55		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Infiltration			Infiltration		
				ELF Ach			ELF Ach		
				1-Pane			1-Pane		
				2-Pane			2-Pane		
				3-Pane			3-Pane		
				R-10			R-10		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Window U-value			Window U-value		
				1-Pane			1-Pane		
				2-Pane			2-Pane		
				3-Pane			3-Pane		
				R-10			R-10		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		
				R-30			R-30		
				R-49			R-49		
				R-60			R-60		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Intercept			Intercept		
				Slope(DD)			Slope(DD)		
				Curve(DDS)			Curve(DDS)		
				Unheated Basement			Unheated Basement		
				R-0			R-0		
				R-11			R-11		
				R-19			R-19		

New York NY

WYEC

One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	29.52	R-0	.00	27.61
R-7	-27.39	11.74	R-7	-15.87	13.49
R-11	-31.76	8.90	R-11	-18.13	11.48
R-19	-35.69	6.35	R-13	-20.86	9.05
R-22	-37.19	5.38	R-19	-22.21	7.85
R-30	-39.19	4.07	R-27	-24.69	5.84
R-38	-40.40	3.29	R-34	-26.21	4.29
R-49	-41.48	2.59			
R-60	-42.17	2.14			
Slope(DD)	5917.73		Slope(DD)	5601.43	
Curve(DDS)	-158.266		Curve(DDS)	-87.037	
Slab (/ft)			Heated Basement (/ft)		
R-0	-19.16	46.80	R-0	-12.19	88.78
R-5 2ft	-23.67	19.63	R-5 4ft	-17.06	59.45
R-5 4ft	-24.96	11.86	R-5 8ft	-18.76	49.20
R-10 2ft	-24.51	14.57	R-10 4ft	-18.36	51.61
R-10 4ft	-26.31	3.72	R-10 8ft	-20.99	35.77
Intercept	-18.707		Intercept	-0.00	
Slope(DD)	6446.43		Slope(DD)	3571.11	
Curve(DDS)	-84.030		Curve(DDS)	-34.332	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-12.19	9.57	R-0	.00	17.49
R-11 flr	-25.22	1.11	R-11 flr	-25.39	1.00
R-19 flr	-28.82	-1.23	R-19 flr	-29.62	-1.75
R-30 flr	-31.14	-2.74	R-30 flr	-32.35	-3.52
			R-38 flr	-32.97	-3.92
			R-49 flr	-34.77	-5.09
Intercept	-6.774		Intercept	-7.689	
Slope(DD)	5486.27		Slope(DD)	5371.10	
Curve(DDS)	-448.327		Curve(DDS)	-90.041	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			ELF Ach		
.0007(.89)	.00	18.12	1-Pane	.00	139.08
.0005(.64)	-8.15	12.83	2-Pane	-13.88	63.97
.0003(.38)	-16.16	7.63	3-Pane	-18.20	40.57
			R-10	-23.29	13.05
Slope/.001ELF	25.097		Slope(DD)	5577.95	
Curve/.001ELF	1.137		Curve(DDS)	-11.730	
Base Load = 150.95 MBtu			Base Load = 150.95 MBtu		
Typical Load = 49.25 MBtu			Typical Load = 49.25 MBtu		
Residual Load = 4.24 MBtu			Residual Load = 4.24 MBtu		

Cooling Load

Delta Component (MBtu)			Delta Component (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	4.28	R-0	.00	2.32
R-7	-3.85	1.78	R-7	-1.18	1.26
R-11	-4.47	1.38	R-11	-1.35	1.11
R-19	-5.02	1.02	R-13	-1.60	.89
R-22	-5.26	.87	R-19	-1.73	.78
R-30	-5.58	.66	R-27	-1.97	.57
R-38	-5.77	.54	R-34	-2.11	.44
R-49	-5.95	.42			
R-60	-6.06	.35			
Slope(DD)	974.08		Slope(DD)	586.24	
Curve(DDS)	-42.421		Curve(DDS)	-28.932	
Slab (/ft)			Heated Basement (/ft)		
R-0	-4.25	-3.37	R-0	-2.74	5.72
R-5 2ft	-4.16	-2.83	R-5 4ft	-3.23	2.77
R-5 4ft	-4.01	-1.93	R-5 8ft	-3.27	2.63
R-10 2ft	-4.12	-2.59	R-10 4ft	-3.37	1.93
R-10 4ft	-3.96	-1.62	R-10 8ft	-3.45	1.45
Intercept	.853		Intercept	.000	
Slope(DD)	-793.08		Slope(DD)	126.98	
Curve(DDS)	36.670		Curve(DDS)	.299	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.74	.62	R-0	.00	2.40
R-11 flr	-.55	2.04	R-11 flr	1.05	3.08
R-19 flr	-.01	2.39	R-19 flr	1.18	3.16
R-30 flr	.34	2.62	R-30 flr	1.35	3.27
			R-38 flr	1.39	3.30
			R-49 flr	1.50	3.37
Intercept	3.211		Intercept	3.461	
Slope(DD)	-800.37		Slope(DD)	-252.04	
Curve(DDS)	57.427		Curve(DDS)	8.685	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			ELF Ach		
.0007(.70)	.00	.86	1-Pane	.00	1.24
.0005(.50)	-.38	.62	2-Pane	-.13	.54
.0003(.30)	-.76	.37	3-Pane	-.17	.34
			R-10	-.21	.11
Slope/.001ELF	1.234		Slope(DD)	44.82	
Curve/.001ELF	.000		Curve(DDS)	.085	
Base Load = 17.02 MBtu			Base Load = 17.02 MBtu		
Typical Load = 5.78 MBtu			Typical Load = 5.78 MBtu		
Residual Load = -2.39 MBtu			Residual Load = -2.39 MBtu		

New York NY	WYEC	Mid Town	Prototype	Siding	Series Two	Heating Load			Cooling Load		
						Delta Component (MBtu)	Delta Component (/sf)	Wall	Delta Component (MBtu)	Delta Component (/sf)	Wall
						Ceiling		R-0			R-0
						R-0	.00	R-0	.00		R-0
						R-7	11.27	R-7	-1.37	3.73	R-7
						R-11	13.07	R-11	-1.59	1.44	R-11
						R-19	14.69	R-13	-1.79	1.07	R-13
						R-22	15.26	R-19	-1.79	.74	R-19
						R-30	16.04	R-22	-1.86	.63	R-22
						R-38	16.50	R-30	-1.95	.48	R-30
						R-49	16.90	R-38	-2.00	.39	R-38
						R-60	17.16	R-49	-2.05	.30	R-49
								R-60	-2.09	.24	R-60
						Slope (DD)	5697.60	Slope (DD)	684.59		Slope (DD)
						Curve (DDS)	-88.352	Curve (DDS)	-9.481		Curve (DDS)
						Slab		Slab			Slab
								Heated Basement			Heated Basement
						R-0	-9.17	R-0	-1.62	-11.59	R-0
						R-5	10.29	R-5	-1.56	-10.09	R-5
						R-10	10.59	R-10	-1.54	-9.59	R-10
						R-15	10.49	R-15	-1.48	-8.09	R-15
						R-20	10.90	R-20	-1.48	-8.09	R-20
						R-25	10.90	R-25	-1.48	-8.09	R-25
						R-30	10.90	R-30	-1.48	-8.09	R-30
						R-35	10.90	R-35	-1.48	-8.09	R-35
						R-40	10.90	R-40	-1.48	-8.09	R-40
						R-45	10.90	R-45	-1.48	-8.09	R-45
						R-50	10.90	R-50	-1.48	-8.09	R-50
						R-55	10.90	R-55	-1.48	-8.09	R-55
						R-60	10.90	R-60	-1.48	-8.09	R-60
						Intercept	-14.874	Intercept	-4.334		Intercept
						Slope (DD)	5743.60	Slope (DD)	-1167.66		Slope (DD)
						Curve (DDS)	-37.943	Curve (DDS)	-46.832		Curve (DDS)
						Unheated Basement		Unheated Basement			Unheated Basement
						R-0	-6.77	R-0	-1.00	.26	R-0
						R-5	10.29	R-5	-1.00	.26	R-5
						R-10	10.59	R-10	-1.00	.26	R-10
						R-15	10.49	R-15	-1.00	.26	R-15
						R-20	10.90	R-20	-1.00	.26	R-20
						R-25	10.90	R-25	-1.00	.26	R-25
						R-30	10.90	R-30	-1.00	.26	R-30
						R-35	10.90	R-35	-1.00	.26	R-35
						R-40	10.90	R-40	-1.00	.26	R-40
						R-45	10.90	R-45	-1.00	.26	R-45
						R-50	10.90	R-50	-1.00	.26	R-50
						R-55	10.90	R-55	-1.00	.26	R-55
						R-60	10.90	R-60	-1.00	.26	R-60
						Intercept	-4.310	Intercept	3.445		Intercept
						Slope (DD)	4420.60	Slope (DD)	-1289.79		Slope (DD)
						Curve (DDS)	-422.192	Curve (DDS)	130.436		Curve (DDS)
						Infiltration		Infiltration			Infiltration
						ELF Ach		ELF Ach			ELF Ach
						.0007(.89)	.00	.0007(.70)	.00	.90	.00
						.0005(.66)	-6.19	.0005(.50)	-26	.69	.04
						.0003(.39)	-12.10	.0003(.30)	-56	.44	-1.31
						Slope/.001ELF	22.292	Slope/.001ELF	1.583		Slope (DD)
						Curve/.001ELF	2.917	Curve/.001ELF	-4.417		Curve (DDS)
						Base Load =	72.95 MBtu	Base Load =	11.75 MBtu		Base Load =
						Typical Load =	21.81 MBtu	Typical Load =	7.76 MBtu		Typical Load =
						Residual Load =	.07 MBtu	Residual Load =	2.92 MBtu		Residual Load =

New York NY

WYEC

MApartment Prototype Siding

Series Two

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-11.05	R-7	-4.62	R-7	-1.35	R-7	-.27
R-11	-12.81	R-11	-5.28	R-11	-1.57	R-11	-.30
R-19	-14.40	R-13	-6.02	R-19	-1.76	R-13	-.36
R-22	-14.95	R-19	-6.39	R-22	-1.84	R-19	-.38
R-30	-15.70	R-27	-7.02	R-30	-1.94	R-27	-.43
R-38	-16.16	R-34	-7.41	R-38	-2.00	R-34	-.45
R-49	-16.52			R-49	-2.02		
R-60	-16.76			R-60	-2.04		
Slope(DD)	5443.63	Slope(DD)	4918.20	Slope(DD)	630.43	Slope(DD)	387.58
Curve(DDS)	-66.471	Curve(DDS)	26.437	Curve(DDS)	-2.619	Curve(DDS)	-12.320

Delta Component (KBtu)		Delta Component (/ft)		Delta Component (/ft)		Delta Component (/ft)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-10.05	R-0	-8.08	R-0	-1.28	R-0	-.90
R-5	-10.93	R-5	-9.63	R-5	-1.24	R-5	-1.00
R-10	-11.18	R-5	-10.06	R-5	-1.21	R-5	-1.01
R-10	-11.09	R-10	-9.98	R-10	-1.23	R-10	-1.03
R-10	-11.42	R-10	-10.59	R-10	-1.19	R-10	-1.03
Intercept	-6.908	Intercept	.000	Intercept	-1.346	Intercept	.000
Slope(DD)	6402.25	Slope(DD)	4165.66	Slope(DD)	-1046.39	Slope(DD)	22.88
Curve(DDS)	-59.884	Curve(DDS)	-26.224	Curve(DDS)	42.745	Curve(DDS)	2.356

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-8.08	R-0	.00	R-0	-.90	R-0	.00
R-11	-10.65	R-11	-9.68	R-11	-.21	R-11	.48
R-19	-11.59	R-19	-11.27	R-19	.03	R-19	.55
R-30	-12.20	R-30	-12.25	R-30	.17	R-30	.70
Intercept	-3.332	R-38	-12.48	Intercept	2.723	R-38	.74
Slope(DD)	3901.64	R-49	-13.12	Slope(DD)	-942.26	R-49	.84
Curve(DDS)	-392.871	Intercept	-4.516	Curve(DDS)	89.529	Intercept	3.297
Infiltration	(/sf flr)	Slope(DD)	5013.76	Slope(DD)	-552.75	Slope(DD)	-552.75
ELF Ach	(/sf)	Curve(DDS)	-52.251	Curve(DDS)	48.844	Curve(DDS)	48.844

Delta Component (/sf flr)		Delta Component (/sf flr)		Delta Component (/sf flr)		Delta Component (/sf flr)	
Window U-value	(/sf)	Window U-value	(/sf)	Window U-value	(/sf)	Window U-value	(/sf)
1-Pane	.00	1-Pane	.84	1-Pane	.00	1-Pane	.00
2-Pane	-10.63	2-Pane	53.00	2-Pane	-.28	2-Pane	.05
3-Pane	-13.47	3-Pane	33.31	3-Pane	-.58	3-Pane	.24
R-10	-16.80	R-10	10.15	R-10	.47	R-10	-.105
Slope(DD)	21.208	Slope(DD)	4268.01	Slope(DD)	1.271	Slope(DD)	-472.17
Curve(DDS)	3.802	Curve(DDS)	20.291	Curve(DDS)	-.104	Curve(DDS)	11.752

Base Load = 10.60 MBtu
 Typical Load = 7.01 MBtu
 Residual Load = 2.67 MBtu

Base Load = 68.96 MBtu
 Typical Load = 19.97 MBtu
 Residual Load = .46 MBtu

Heating Load

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	19.51	R-7	R-7	7.54	R-7
R-11	22.62	R-11	R-11	-6.93	R-11
R-19	25.42	R-19	R-19	-8.04	R-19
R-22	26.50	R-22	R-22	-9.03	R-22
R-30	27.94	R-30	R-30	-9.43	R-30
R-38	28.81	R-38	R-38	-9.97	R-38
R-49	29.58	R-49	R-49	-10.29	R-49
R-60	30.08	R-60	R-60	-10.56	R-60
				-10.73	
Slope(DD)	4265.52	Slope(DD)	Slope(DD)	1571.39	Slope(DD)
Curve(DDS)	-119.912	Curve(DDS)	Curve(DDS)	-50.489	Curve(DDS)
Slab	(/ft)	Heated Basement	Slab	(/ft)	Heated Basement
R-0	-16.69	R-0	R-0	-7.61	R-0
R-5 2ft	-20.13	R-5 4ft	R-5 2ft	-7.77	R-5 4ft
R-5 4ft	-21.07	R-5 8ft	R-5 4ft	-7.70	R-5 8ft
R-10 2ft	-20.76	R-10 4ft	R-10 2ft	-7.79	R-10 4ft
R-10 4ft	-22.03	R-10 8ft	R-10 4ft	-7.67	R-10 8ft
Intercept	.000	Intercept	Intercept	.000	Intercept
Slope(DD)	4854.82	Slope(DD)	Slope(DD)	-763.37	Slope(DD)
Curve(DDS)	-53.133	Curve(DDS)	Curve(DDS)	55.055	Curve(DDS)
Unheated Basement	(/sf)	Crawl	Unheated Basement	(/sf)	Crawl
R-0	-11.17	R-0	R-0	-4.03	R-0
R-11 flr	-20.01	R-11 flr	R-11 flr	2.15	R-11 flr
R-19 flr	-22.42	R-19 flr	R-19 flr	1.56	R-19 flr
R-30 flr	-23.97	R-30 flr	R-30 flr	-1.01	R-30 flr
Intercept	-2.251	Intercept	Intercept	-0.66	Intercept
Slope(DD)	3656.79	Slope(DD)	Slope(DD)	4.926	Slope(DD)
Curve(DDS)	-294.547	Curve(DDS)	Curve(DDS)	-782.35	Curve(DDS)
Infiltration	(/sf flr)	Window U-value	Infiltration	(/sf flr)	Window U-value
ELF Ach		ELF Ach	ELF Ach		
.0007(.87)	.00	.0007(.64)	.0007(.64)	.00	.00
.0005(.62)	-5.97	.0005(.45)	.0005(.45)	-1.45	-1.45
.0003(.36)	-11.73	.0003(.29)	.0003(.29)	-2.94	-2.94
Slope/.001ELF	17.337	Slope(DD)	Slope/.001ELF	5.097	Slope(DD)
Curve/.001ELF	1.705	Curve(DDS)	Curve/.001ELF	-325	Curve(DDS)
Base Load =	107.79 MBtu	Base Load =	Base Load =	39.81 MBtu	
Typical Load =	43.37 MBtu	Typical Load =	Typical Load =	18.84 MBtu	
Residual Load =	.47 MBtu	Residual Load =	Residual Load =	.74 MBtu	

Oklahoma City OK WYEC			Mid Town Prototype Siding			Series Two		
Heating Load			Cooling Load					
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling			Wall		
R-0	.00	22.80	R-0	.00	19.31	R-0	.00	6.67
R-7	-8.47	8.68	R-7	-5.05	8.71	R-7	-2.58	2.37
R-11	-9.82	6.42	R-11	-5.77	7.20	R-11	-2.99	1.69
R-19	-11.04	4.40	R-13	-6.58	5.50	R-19	-3.36	1.07
R-22	-11.48	3.70	R-19	-6.98	4.66	R-22	-3.45	.92
R-30	-12.01	2.77	R-27	-7.59	3.37	R-30	-3.58	.71
R-38	-12.35	2.21	R-34	-7.97	2.58	R-38	-3.65	.59
R-49	-12.62	1.77				R-49	-3.75	.42
R-60	-12.79	1.48				R-60	-3.81	.32
Slope(DD)	3996.89		Slope(DD)	3228.02		Slope(DD)	945.85	
Curve(DDS)	-25.622		Curve(DDS)	67.412		Curve(DDS)	30.194	
Slab			Heated Basement			Slab		
R-0	-7.54	38.86	R-0	-5.80	82.36	R-0	-2.96	-1.03
R-5	-8.34	18.88	R-5	-7.21	47.11	R-5	-2.97	-1.28
R-10	-8.52	14.36	R-5	-7.56	38.36	R-5	-2.95	-1.78
R-10	-8.46	15.86	R-10	-7.51	39.61	R-10	-2.99	-1.78
R-10	-8.69	10.11	R-10	-7.93	29.11	R-10	-2.96	-1.03
Intercept	.000		Intercept	7.096		Intercept	.000	
Slope(DD)	2798.30		Slope(DD)	2083.05		Slope(DD)	-382.39	
Curve(DDS)	57.634		Curve(DDS)	-5.001		Curve(DDS)	25.820	
Unheated Basement			Crawl			Unheated Basement		
R-0	-5.80	5.49	R-0	.00	15.16	R-0	-1.56	2.26
R-11	-7.83	2.11	R-11	-6.93	3.61	R-11	-.63	3.81
R-19	-8.46	1.06	R-19	-8.01	1.81	R-19	-.39	4.22
R-30	-8.86	.39	R-30	-8.59	.84	R-30	-.23	4.48
Intercept	-1.447		R-38	-8.72	.62			
Slope(DD)	2514.33		R-49	-9.10	-.01	Intercept	5.175	
Curve(DDS)	-226.473		Intercept	-1.573		Slope(DD)	-938.00	
Infiltration			Slope(DD)	3007.95		Curve(DDS)	72.257	
ELF Ach			Curve(DDS)	49.695		Window U-value		
.0007(.87)	.00	10.57	1-Pane	.00	81.85	1-Pane	.00	-2.34
.0005(.60)	-4.45	6.86	2-Pane	-7.40	30.46	2-Pane	-.29	-4.35
.0003(.37)	-8.24	3.71	3-Pane	-9.08	18.91	3-Pane	-.09	-2.95
			R-10	-11.02	5.32	R-10	.15	-1.30
Slope/.001ELF	10.291		Slope(DD)	2180.28		Slope(DD)	-596.10	
Curve/.001ELF	6.875		Curve(DDS)	34.850		Curve(DDS)	19.226	
Base Load =	51.77 MBtu		Base Load =	26.86 MBtu		Typical Load =	18.36 MBtu	
Typical Load =	22.17 MBtu		Residual Load =	3.01 MBtu		Residual Load =	8.33 MBtu	

Heating Load

Delta Component		Delta Component		Delta Component	
(MBtu)		(KBtu)		(KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-8.76	R-7	-3.47	R-7	-2.64
R-11	-10.16	R-11	-3.96	R-11	-3.07
R-19	-11.42	R-13	-4.49	R-19	-3.44
R-22	-11.83	R-19	-4.76	R-22	-3.56
R-30	-12.39	R-27	-5.17	R-30	-3.71
R-38	-12.73	R-34	-5.41	R-38	-3.80
R-49	-12.97			R-49	-3.86
R-60	-13.13			R-60	-3.90

Slope(DD)	3879.24	Slope(DD)	3125.00	Slope(DD)	995.24
Curve(DDS)	9.744	Curve(DDS)	96.557	Curve(DDS)	27.926

Slab		Heated Basement		Heated Basement	
(/ft)		(/ft)		(/ft)	
R-0	-8.19	R-0	-6.81	R-0	-2.44
R-5 2ft	-8.84	R-5 4ft	-8.08	R-5 2ft	-2.43
R-5 4ft	-9.01	R-5 8ft	-8.39	R-5 4ft	-2.42
R-10 2ft	-8.95	R-10 4ft	-8.35	R-10 2ft	-2.44
R-10 4ft	-9.15	R-10 8ft	-8.73	R-10 4ft	-2.42
Intercept	.000	Intercept	.127	Intercept	.000
Slope(DD)	3609.25	Slope(DD)	2515.44	Slope(DD)	-595.21
Curve(DDS)	30.142	Curve(DDS)	-6.160	Curve(DDS)	33.328

Unheated Basement		Crawl		Unheated Basement	
(/sf)		(/sf)		(/sf)	
R-0	-6.81	R-0	.00	R-0	-1.36
R-11 flr	-8.46	R-11 flr	-7.23	R-11 flr	-1.50
R-19 flr	-9.03	R-19 flr	-8.38	R-19 flr	-2.26
R-30 flr	-9.39	R-30 flr	-8.99	R-30 flr	-1.10
Intercept	-1.452	Intercept	-1.674	Intercept	4.480
Slope(DD)	2318.52	Slope(DD)	3210.30	Slope(DD)	-957.00
Curve(DDS)	-224.199	Curve(DDS)	41.684	Curve(DDS)	80.013

Infiltration		Window U-value		Window U-value	
ELF Ach		ELF Ach		ELF Ach	
.0007(.87)	.00	.0007(.64)	.00	.0007(.64)	.00
.0005(.62)	-4.45	.0005(.48)	-1.01	.0005(.48)	-1.01
.0003(.37)	-8.20	.0003(.29)	-1.99	.0003(.29)	-1.99

Slope/.001ELF	9.854	Slope(DD)	1980.62	Slope(DD)	3.896
Curve/.001ELF	7.240	Curve(DDS)	43.093	Curve(DDS)	.260

Base Load = 49.51 MBtu
 Typical Load = 20.85 MBtu
 Residual Load = 3.14 MBtu

Base Load = 24.86 MBtu
 Typical Load = 17.26 MBtu
 Residual Load = 7.19 MBtu

Cooling Load

Delta Component		Delta Component		Delta Component	
(MBtu)		(KBtu)		(KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	.00	R-0	.00
R-7	-2.64	R-7	2.48	R-7	2.86
R-11	-3.07	R-11	1.77	R-11	.63
R-19	-3.44	R-13	1.14	R-13	.72
R-22	-3.56	R-19	.95	R-19	.78
R-30	-3.71	R-27	.70	R-27	.82
R-38	-3.80	R-34	.55	R-34	.86
R-49	-3.86		.45		.20
R-60	-3.90		.38		.15

Slope(DD)	110.37
Curve(DDS)	78.324

Heated Basement		Heated Basement	
(/ft)		(/ft)	
R-0	-1.36	R-0	-1.36
R-5 4ft	-1.57	R-5 4ft	-1.57
R-5 8ft	-1.61	R-5 8ft	-1.61
R-10 4ft	-1.65	R-10 4ft	-1.65
R-10 8ft	-1.67	R-10 8ft	-1.67
Intercept	19.778	Intercept	19.778
Slope(DD)	298.81	Slope(DD)	298.81
Curve(DDS)	1.142	Curve(DDS)	1.142

Unheated Basement		Crawl	
(/sf)		(/sf)	
R-0	1.68	R-0	.00
R-11 flr	3.11	R-11 flr	.39
R-19 flr	3.52	R-19 flr	.39
R-30 flr	3.78	R-30 flr	.38
Intercept	4.480	R-38 flr	.38
Slope(DD)	-957.00	R-49 flr	.38
Curve(DDS)	80.013	Intercept	4.517
		Slope(DD)	112.49
		Curve(DDS)	-43.758

Infiltration		Window U-value	
ELF Ach		ELF Ach	
.0007(.64)	.00	.0007(.64)	.00
.0005(.48)	-1.01	.0005(.48)	-1.01
.0003(.29)	-1.99	.0003(.29)	-1.99

Slope/.001ELF	3.896	Slope(DD)	-513.82
Curve/.001ELF	.260	Curve(DDS)	17.318

Base Load = 24.86 MBtu
 Typical Load = 17.26 MBtu
 Residual Load = 7.19 MBtu

Omaha NB	WYEC	One Story	Prototype	Siding	Series Two	Cooling Load				
						Heating Load				
						Delta Component		Delta Component		
						(MBtu)		(KBtu)		
						Ceiling	Wall	Ceiling	Wall	
R-0	.00	34.31	.00	32.24	R-0	.00	R-0	.00	R-0	.00
R-7	-31.75	13.70	-18.54	15.74	R-7	-5.96	R-7	6.56	R-7	3.59
R-11	-36.82	10.40	-21.18	13.39	R-11	-6.91	R-11	2.08	R-11	-1.93
R-19	-41.37	7.45	-24.37	10.56	R-19	-7.76	R-19	1.52	R-13	-2.21
R-22	-43.12	6.31	-25.95	9.15	R-22	-8.12	R-22	1.29	R-19	-2.60
R-30	-45.47	4.78	-28.84	6.58	R-30	-8.60	R-30	.98	R-27	-2.79
R-38	-46.89	3.86	-30.61	5.00	R-38	-8.89	R-38	.79	R-27	-3.12
R-49	-48.15	3.04			R-49	-9.14	R-49	.62	R-34	-3.33
R-60	-48.97	2.51			R-60	-9.30	R-60	.52		.63
						Slope(DD)	Slope(DD)	1435.75	Slope(DD)	823.75
						Curve(DDS)	Curve(DDS)	-55.555	Curve(DDS)	-29.054
						Slab	Slab	(/ft)	Heated Basement	(/ft)
R-0	-21.55	56.77	R-0	-12.93	108.70	R-0	-6.23	-5.75	R-0	-3.83
R-5	-26.96	24.18	R-5	-18.90	72.74	R-5	-6.19	-5.51	R-5	4ft
R-5	-28.52	14.78	R-5	-20.97	60.27	R-5	-6.08	-4.85	R-5	8ft
R-10	-27.97	18.10	R-10	-20.48	63.22	R-10	-6.17	-5.39	R-10	4ft
R-10	-30.16	4.91	R-10	-23.71	43.76	R-10	-6.02	-4.49	R-10	8ft
Intercept	-22.786		Intercept	.000		Intercept	-2.222		Intercept	2.32
Slope(DD)	8396.37		Slope(DD)	4463.37		Slope(DD)	-782.46		Slope(DD)	.000
Curve(DDS)	-135.822		Curve(DDS)	-44.083		Curve(DDS)	41.095		Curve(DDS)	207.86
						Unheated Basement	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-12.93	11.72	R-0	.00	20.11	R-0	-3.83	.94	R-0	.00
R-11	-27.96	1.96	R-11	-28.04	1.91	R-11	-1.11	2.70	R-11	f1r
R-19	-32.18	-7.9	R-19	-32.92	-1.26	R-19	-.37	3.19	R-19	f1r
R-30	-34.90	-2.55	R-30	-36.08	-3.30	R-30	.11	3.50	R-30	f1r
			R-38	-36.78	-3.77				R-38	f1r
			R-49	-38.85	-5.11				R-49	f1r
Intercept	-7.298		Intercept	-8.178		Intercept	-4.327		Intercept	4.301
Slope(DD)	6457.53		Slope(DD)	6316.58		Slope(DD)	-1126.95		Slope(DD)	-144.33
Curve(DDS)	-536.162		Curve(DDS)	-155.906		Curve(DDS)	90.893		Curve(DDS)	-5.140
						Infiltration	Infiltration	(/sf f1r)	Window U-value	(/sf)
						ELF Ach	ELF Ach			
.0007(.85)	.00	19.90	1-Pane	.00	154.62	.0007(.58)	.00	1.72	1-Pane	.00
.0005(.59)	-8.93	14.10	2-Pane	-14.94	73.77	.0005(.42)	-.72	1.25	2-Pane	-.38
.0003(.35)	-17.72	8.39	3-Pane	-19.90	46.94	.0003(.25)	-1.47	.77	3-Pane	-.51
			R-10	-25.73	15.38				R-10	-.67
						Slope/.001ELF	Slope/.001ELF	2.630	Slope(DD)	182.26
						Curve/.001ELF	Curve/.001ELF	-.243	Curve(DDS)	-1.098
						Base Load =	Base Load =	26.80 MBtu		
						Typical Load =	Typical Load =	9.47 MBtu		
						Residual Load =	Residual Load =	-3.14 MBtu		

Omaha NB	WYEC	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load		Cooling Load	
						Delta Component (MBtu)		Delta Component (KBtu)	
						Ceiling (/sf)		Wall (/sf)	
R-0	.00	35.65	.00	31.58	.00	6.15	.00	R-0	.00
R-7	-13.07	13.87	R-7	-7.89	15.03	2.40	-2.25	R-7	-7.71
R-11	-15.16	10.40	R-11	-9.01	12.67	1.81	-2.61	R-11	-8.81
R-19	-17.03	7.27	R-13	-10.33	9.89	1.27	-2.93	R-13	-9.94
R-22	-17.70	6.15	R-19	-10.99	8.51	1.08	-3.04	R-19	-1.00
R-30	-18.61	4.65	R-27	-12.12	6.14	.82	-3.20	R-27	-1.09
R-38	-19.15	3.74	R-34	-12.82	4.67	.67	-3.29	R-34	-1.14
R-49	-19.62	2.95				.52	-3.38		
R-60	-19.93	2.44				.42	-3.44		
						Slope(DD)	6706.65	Slope(DD)	502.04
						Curve(DDS)	-116.857	Curve(DDS)	3.326
						Slab (/ft)		Heated Basement (/ft)	
R-0	-10.33	56.92	R-0	-7.40	130.17		-2.36	R-0	-1.39
R-5 2ft	-11.66	23.67	R-5 4ft	-9.47	78.42		-2.33	R-5 4ft	-1.58
R-5 4ft	-12.02	14.67	R-5 8ft	-10.06	63.67		-2.28	R-5 8ft	-1.58
R-10 2ft	-11.90	17.67	R-10 4ft	-9.96	66.17		-2.32	R-10 4ft	-1.63
R-10 4ft	-12.38	5.67	R-10 8ft	-10.79	45.42		-2.27	R-10 8ft	-1.64
Intercept	-18.662		Intercept	.000			Intercept	.000	
Slope(DD)	7154.36		Slope(DD)	4454.47			Slope(DD)	79.44	
Curve(DDS)	-58.578		Curve(DDS)	-30.928			Curve(DDS)	2.501	
						Unheated Basement (/sf)		Crawl (/sf)	
R-0	-7.40	8.68	R-0	.00	21.01		-1.39	R-0	.00
R-11 flr	-11.09	2.53	R-11 flr	-10.40	3.68		-39	R-11 flr	.43
R-19 flr	-12.33	.47	R-19 flr	-12.18	.71		-10	R-19 flr	.46
R-30 flr	-13.12	-.86	R-30 flr	-13.25	-1.08		.08	R-30 flr	.50
Intercept	-4.523		R-38 flr	-13.50	-1.49			R-38 flr	.51
Slope(DD)	5039.74		R-49 flr	-14.21	-2.67			R-49 flr	.54
Curve(DDS)	-480.784		Intercept	-5.465			Intercept	3.771	
			Slope(DD)	5629.07			Slope(DD)	-1127.32	
			Curve(DDS)	-90.830			Curve(DDS)	95.179	
						Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach			Window U-value				ELF Ach		
.0007(.82)	.00	18.46	1-Pane	.00	140.00		.007(.54)	1-Pane	.00
.0005(.61)	-6.78	12.81	2-Pane	-11.35	61.18		.0005(.36)	2-Pane	-1.0
.0003(.37)	-13.20	7.46	3-Pane	-14.60	38.62		.0003(.23)	3-Pane	-1.39
			R-10	-18.42	12.08			R-10	.11
						Slope(DD)	5121.76	Slope(DD)	-273.81
Slope/.001ELF	23.750		Curve(DDS)	6.868			Curve/.001ELF	Curve(DDS)	8.418
Curve/.001ELF	3.750								
						Base Load =	Base Load =	Base Load =	Base Load =
						Typical Load =	Typical Load =	Typical Load =	Typical Load =
						Residual Load =	Residual Load =	Residual Load =	Residual Load =
						82.80 MBtu	17.96 MBtu	11.45 MBtu	3.97 MBtu
						25.06 MBtu			
						1.76 MBtu			

Omaha NB	WYEC	MApartment Prototype Siding	Series Two		
		Heating Load	Cooling Load		
		Delta Component (KBtu)	Delta Component (KBtu)	Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Wall	
R-0	.00	R-0	.00	R-0	.00
R-7	-12.80	R-7	-5.37	R-7	-2.18
R-11	-14.85	R-11	-6.14	R-11	-2.52
R-19	-16.68	R-13	-7.01	R-19	-2.83
R-22	-17.35	R-19	-7.44	R-22	-2.93
R-30	-18.23	R-27	-8.19	R-30	-3.07
R-38	-18.76	R-34	-8.65	R-38	-3.14
R-49	-19.20			R-49	-3.21
R-60	-19.48			R-60	-3.26
Slope(DD)	6464.09	Slope(DD)	5825.14	Slope(DD)	950.47
Curve(DDS)	-98.986	Curve(DDS)	16.727	Curve(DDS)	4.125
Slab	(/ft)	Heated Basement	(/ft)	Heated Basement	(/ft)
R-0	-11.30	R-0	-8.90	R-0	-1.88
R-5	-12.34	R-5	-10.75	R-5	-1.85
R-5	-12.64	R-5	-11.27	R-5	-1.82
R-10	-12.53	R-10	-11.18	R-10	-1.84
R-10	-12.94	R-10	-11.90	R-10	-1.81
Intercept	-10.081	Intercept	.000	Intercept	-7.750
Slope(DD)	8314.40	Slope(DD)	5101.15	Slope(DD)	-979.80
Curve(DDS)	-107.372	Curve(DDS)	-33.520	Curve(DDS)	44.930
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)
R-0	-8.90	R-0	.00	R-0	-1.24
R-11	-11.82	R-11	-10.63	R-11	-1.43
R-19	-12.91	R-19	-12.45	R-19	-1.11
R-30	-13.60	R-30	-13.59	R-30	.10
Intercept	-3.465	R-38	-13.85	R-38	.63
Slope(DD)	4489.92	R-49	-14.60	R-49	.65
Curve(DDS)	-454.357	Intercept	-4.769	Intercept	3.589
Infiltration	(/sf flr)	Slope(DD)	5894.06	Slope(DD)	-1326.33
ELF Ach		Curve(DDS)	-114.152	Curve(DDS)	137.588
.0007(.82)	.00	Window U-value	(/sf)	Window U-value	(/sf)
.0005(.61)	-6.78	1-Pane	.00	1-Pane	.00
.0003(.36)	-13.15	2-Pane	-11.50	2-Pane	-.15
		3-Pane	-14.72	3-Pane	.04
		R-10	-18.51	R-10	.26
Slope/.001ELF	23.063	Slope(DD)	5016.96	Slope(DD)	-520.60
Curve/.001ELF	4.322	Curve(DDS)	11.417	Curve(DDS)	15.445
		Base Load =	78.27 MBtu	Base Load =	
		Typical Load =	23.03 MBtu	Typical Load =	
		Residual Load =	2.00 MBtu	Residual Load =	

Heating Load				Cooling Load							
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)					
Ceiling		Wall		Ceiling		Wall					
R-0	.00	R-0	.00	R-0	.00	R-0	.00				
R-7	-27.15	R-7	-15.52	R-7	-4.94	R-7	-1.48				
R-11	-31.49	R-11	-17.73	R-11	-5.73	R-11	-1.69				
R-19	-35.38	R-13	-20.42	R-19	-6.44	R-13	-2.02				
R-22	-36.86	R-19	-21.76	R-22	-6.73	R-19	-2.19				
R-30	-38.84	R-27	-24.19	R-30	-7.12	R-27	-2.44				
R-38	-40.04	R-34	-25.69	R-38	-7.36	R-34	-2.60				
R-49	-41.10			R-49	-7.57						
R-60	-41.79			R-60	-7.70						
Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)					
Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)					
Slab		Heated Basement		Slab		Heated Basement					
R-0	-18.66	R-0	-11.79	R-0	-4.70	R-0	-2.97				
R-5 2ft	-23.21	R-5 4ft	-16.79	R-5 2ft	-4.57	R-5 4ft	-3.44				
R-5 4ft	-24.52	R-5 8ft	-18.53	R-5 4ft	-4.47	R-5 8ft	-3.45				
R-10 2ft	-24.04	R-10 4ft	-18.13	R-10 2ft	-4.55	R-10 4ft	-3.57				
R-10 4ft	-25.87	R-10 8ft	-20.85	R-10 4ft	-4.40	R-10 8ft	-3.61				
Intercept	-15.917	Intercept	.000	Intercept	-1.810	Intercept	.000				
Slope(DD)	6735.14	Slope(DD)	3756.49	Slope(DD)	-670.90	Slope(DD)	72.76				
Curve(DDS)	-95.899	Curve(DDS)	-37.037	Curve(DDS)	29.299	Curve(DDS)	1.081				
Unheated Basement		Crawl		Unheated Basement		Crawl					
R-0	-11.79	R-0	.00	R-0	-2.97	R-0	.00				
R-11 flr	-24.56	R-11 flr	-24.56	R-11 flr	-.80	R-11 flr	.86				
R-19 flr	-28.08	R-19 flr	-28.68	R-19 flr	-.23	R-19 flr	.96				
R-30 flr	-30.35	R-30 flr	-31.27	R-30 flr	.14	R-30 flr	1.09				
Intercept	-6.122	R-38 flr	-31.86	Intercept	3.170	R-38 flr	1.12				
Slope(DD)	5363.04	R-49 flr	-33.57	Slope(DD)	-860.46	R-49 flr	1.21				
Curve(DDS)	-437.355	Intercept	-4.26	Curve(DDS)	66.828	Intercept	3.291				
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Slope(DD)	-187.00				
ELF Ach				ELF Ach		Curve(DDS)	4.226				
.0007(.81)	.00	1-Pane	.00	.0007(.55)	.00	1-Pane	.00				
.0005(.57)	-7.85	2-Pane	-12.74	.0005(.39)	-.54	2-Pane	-.22				
.0003(.34)	-15.56	3-Pane	-16.93	.0003(.24)	-1.06	3-Pane	-.30				
		R-10	-21.86		.48	R-10	-.39				
Slope/.001ELF		Slope(DD)		Slope/.001ELF		Slope(DD)					
Curve/.001ELF		Curve(DDS)		Curve/.001ELF		Curve(DDS)					
24.123		5560.54		1.568		107.44					
1.136		-22.316		.162		-.685					
Base Load = 145.77 MBtu				Base Load = 20.84 MBtu							
Typical Load = 46.59 MBtu				Typical Load = 7.09 MBtu							
Residual Load = 3.09 MBtu				Residual Load = -2.45 MBtu							

Philadelphia PA TMY Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (Kbtu)		Delta Component (MBtu)		Delta Component (Kbtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-11.17	R-7	-6.68	R-7	-1.83	R-7	-1.83
R-11	-12.96	R-11	-7.63	R-11	-2.12	R-11	-2.12
R-13	-14.56	R-13	-8.73	R-13	-2.38	R-13	-2.38
R-19	-15.13	R-19	-9.27	R-19	-2.48	R-19	-2.48
R-22	-15.90	R-22	-10.22	R-22	-2.62	R-22	-2.62
R-30	-16.36	R-30	-10.80	R-30	-2.70	R-30	-2.70
R-38	-16.78	R-38	-11.41	R-38	-2.79	R-38	-2.79
R-49	-17.01	R-49	-12.04	R-49	-2.84	R-49	-2.84
R-60	-17.01	R-60	-12.04	R-60	-2.84	R-60	-2.84
Slope(DD)	5656.04	Slope(DD)	4963.57	Slope(DD)	1082.61	Slope(DD)	405.91
Curve(DDS)	-88.758	Curve(DDS)	-6.124	Curve(DDS)	-37.133	Curve(DDS)	4.144
Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)	
Slab		Slab		Slab		Slab	
R-0	-8.91	R-0	-6.59	R-0	-1.82	R-0	-1.13
R-5	-10.02	R-5	-8.31	R-5	-1.76	R-5	-1.24
R-10	-10.31	R-10	-8.80	R-10	-1.72	R-10	-1.24
R-15	-10.21	R-15	-8.71	R-15	-1.75	R-15	-1.27
R-20	-10.61	R-20	-9.40	R-20	-1.69	R-20	-1.27
Intercept	-12.491	Intercept	.000	Intercept	-6.754	Intercept	.000
Slope(DD)	5651.70	Slope(DD)	3638.79	Slope(DD)	-1105.10	Slope(DD)	12.21
Curve(DDS)	-32.933	Curve(DDS)	-24.533	Curve(DDS)	46.132	Curve(DDS)	2.028
Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)	
Crawl		Crawl		Crawl		Crawl	
R-0	-6.59	R-0	.00	R-0	-1.13	R-0	.00
R-5	-9.67	R-5	-9.09	R-5	-1.13	R-5	.41
R-10	-10.69	R-10	-10.59	R-10	-1.02	R-10	.53
R-15	-11.35	R-15	-11.49	R-15	.14	R-15	.57
Intercept	-3.786	Intercept	-4.610	Intercept	3.077	Intercept	.58
Slope(DD)	4163.75	Slope(DD)	4626.17	Slope(DD)	-954.28	Slope(DD)	-347.70
Curve(DDS)	-394.993	Curve(DDS)	-36.128	Curve(DDS)	78.905	Curve(DDS)	21.475
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
R-0	.0007(.80)	R-0	.00	R-0	.00	R-0	.00
R-5	.0005(.60)	R-5	-9.59	R-5	.00	R-5	.00
R-10	.0003(.36)	R-10	-12.28	R-10	-.39	R-10	.01
Slope(DD)	19.666	Slope(DD)	4147.54	Slope(DD)	1.500	Slope(DD)	-.290
Curve(DDS)	4.272	Curve(DDS)	10.520	Curve(DDS)	.104	Curve(DDS)	7.476
Base Load = 69.76 MBtu				Base Load = 14.06 MBtu			
Typical Load = 20.28 MBtu				Typical Load = 8.91 MBtu			
Residual Load = .91 MBtu				Residual Load = 3.23 MBtu			

Phoenix AZ	WYEC	One Story Prototype Siding	Series Two	Cooling Load	
				Heating Load	
Delta Component (MBtu)		Delta Component (MBtu)		Delta Component (MBtu)	
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00	R-0 9.67	R-0 .00	R-0 6.92	R-0 .00	R-0 .00
R-7 -9.37	R-7 3.59	R-7 -4.56	R-7 2.86	R-7 -18.55	R-7 8.01
R-11 -10.87	R-11 2.62	R-11 -5.21	R-11 2.28	R-11 -21.51	R-11 6.08
R-19 -12.21	R-19 1.75	R-19 -5.91	R-19 1.66	R-19 -24.17	R-19 4.36
R-22 -12.64	R-22 1.46	R-22 -6.26	R-22 1.35	R-22 -25.19	R-22 3.69
R-30 -13.23	R-30 1.08	R-30 -6.66	R-30 1.00	R-30 -26.56	R-30 2.80
R-38 -13.58	R-38 .86	R-38 -6.90	R-38 .78	R-38 -27.39	R-38 2.27
R-49 -13.83	R-49 .69			R-49 -28.14	R-49 1.78
R-60 -13.99	R-60 .59			R-60 -28.62	R-60 1.47
Slope(DD) 1558.23		Slope(DD) 900.41		Slope(DD) 4072.36	
Curve(DDS) 12.393		Curve(DDS) 71.850		Curve(DDS) -116.435	
Slab (/ft)		Heated Basement (/ft)		Heated Basement (/ft)	
R-0 -6.81	R-0 6.22	R-0 -4.40	R-0 20.73	R-0 -12.36	R-0 10.20
R-5 2ft -7.71	R-5 .79	R-5 4ft -6.18	R-5 10.01	R-5 2ft -12.67	R-5 8.33
R-5 4ft -7.82	R-5 .13	R-5 8ft -6.47	R-5 8.26	R-5 4ft -12.83	R-5 7.37
R-10 2ft -7.83	R-10 .07	R-10 4ft -6.51	R-10 8.02	R-10 2ft -12.89	R-10 7.01
R-10 4ft -7.93	R-10 -.53	R-10 8ft -6.78	R-10 6.40	R-10 4ft -13.13	R-10 5.56
Intercept .000		Intercept 2.731		Intercept .000	
Slope(DD) -660.83		Slope(DD) 325.97		Slope(DD) 2345.73	
Curve(DDS) 169.737		Curve(DDS) 4.531		Curve(DDS) -134.458	
Unheated Basement (/sf)		Crawl (/sf)		Crawl (/sf)	
R-0 -4.40	R-0 2.23	R-0 .00	R-0 5.09	R-0 -5.23	R-0 5.73
R-11 flr -6.58	R-11 .82	R-11 flr -5.84	R-11 1.30	R-11 flr -6.16	R-11 5.13
R-19 flr -7.06	R-19 .51	R-19 flr -6.63	R-19 .79	R-19 flr -6.68	R-19 4.79
R-30 flr -7.37	R-30 .31	R-30 flr -6.99	R-30 .55	R-30 flr -7.01	R-30 4.57
Intercept -.208		R-38 flr -7.07	R-38 .50		R-38 flr -6.07
Slope(DD) 685.46		R-49 flr -7.31	R-49 .35	Intercept 3.940	R-49 flr -6.62
Curve(DDS) -40.782		Intercept -.040		Slope(DD) 887.23	Intercept 3.932
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value	
ELF Ach		ELF Ach		ELF Ach	
.0007(.55) .00	2.18	1-Pane .00	22.65	.0007(.51) .00	4.52
.0005(.39) -1.56	1.17	2-Pane -2.83	7.34	.0005(.37) -2.00	3.22
.0003(.25) -2.64	.47	3-Pane -3.36	4.48	.0003(.22) -3.99	1.93
R-10 -3.98		R-10 -3.98	1.11		
Slope/.001ELF .389		Slope(DD) 435.78		Slope/.001ELF 6.396	
Curve/.001ELF 3.896		Curve(DDS) 15.992		Curve/.001ELF .081	
Base Load = 36.44 MBtu		Base Load = 89.69 MBtu		Base Load = 89.69 MBtu	
Typical Load = 9.75 MBtu		Typical Load = 43.25 MBtu		Typical Load = 43.25 MBtu	
Residual Load = 1.61 MBtu		Residual Load = 6.73 MBtu		Residual Load = 6.73 MBtu	

Phoenix AZ	WYEC	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load		Cooling Load	
						Delta Component (MBtu)		Delta Component (MBtu)	
						Ceiling (/sf)		Wall (/sf)	
						R-0		R-0	
						R-7		R-7	
						R-11		R-11	
						R-13		R-13	
						R-19		R-19	
						R-22		R-22	
						R-30		R-30	
						R-38		R-38	
						R-49		R-49	
						R-60		R-60	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Slab (/ft)		Heated Basement (/ft)	
						R-0		R-0	
						R-5 2ft		R-5 4ft	
						R-5 4ft		R-5 8ft	
						R-10 2ft		R-10 4ft	
						R-10 4ft		R-10 8ft	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Unheated Basement (/sf)		Crawl (/sf)	
						R-0		R-0	
						R-11 flr		R-11 flr	
						R-19 flr		R-19 flr	
						R-30 flr		R-30 flr	
						R-38 flr		R-38 flr	
						R-49 flr		R-49 flr	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Infiltration (/sf flr)		Window U-value (/sf)	
						ELF Ach		1-Pane	
						.0007(.55)		2-Pane	
						.0005(.41)		3-Pane	
						.0003(.25)		R-10	
						Slope/.001ELF		Slope(DD)	
						Curve/.001ELF		Curve(DDS)	
						Base Load =		Base Load =	
						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	

Phoenix AZ	WYEC	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load		Cooling Load	
						Delta Component (MBtu)		Delta Component (MBtu)	
						Ceiling (/sf)		Wall (/sf)	
						R-0		R-0	
						R-7		R-7	
						R-11		R-11	
						R-13		R-13	
						R-19		R-19	
						R-22		R-22	
						R-30		R-30	
						R-38		R-38	
						R-49		R-49	
						R-60		R-60	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Slab (/ft)		Heated Basement (/ft)	
						R-0		R-0	
						R-5 2ft		R-5 4ft	
						R-5 4ft		R-5 8ft	
						R-10 2ft		R-10 4ft	
						R-10 4ft		R-10 8ft	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Unheated Basement (/sf)		Crawl (/sf)	
						R-0		R-0	
						R-11 flr		R-11 flr	
						R-19 flr		R-19 flr	
						R-30 flr		R-30 flr	
						R-38 flr		R-38 flr	
						R-49 flr		R-49 flr	
						Intercept		Intercept	
						Slope(DD)		Slope(DD)	
						Curve(DDS)		Curve(DDS)	
						Infiltration (/sf flr)		Window U-value (/sf)	
						ELF Ach		1-Pane	
						.0007(.55)		2-Pane	
						.0005(.41)		3-Pane	
						.0003(.25)		R-10	
						Slope/.001ELF		Slope(DD)	
						Curve/.001ELF		Curve(DDS)	
						Base Load =		Base Load =	
						Typical Load =		Typical Load =	
						Residual Load =		Residual Load =	

Pittsburgh PA WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	34.52	.00
R-7	-31.83	13.85	-18.69
R-11	-36.91	10.55	-21.35
R-19	-41.47	7.59	-24.61
R-22	-43.25	6.43	-26.22
R-30	-45.64	4.88	-29.16
R-38	-47.08	3.94	-30.96
R-49	-48.37	3.10	-30.96
R-60	-49.21	2.56	-30.96

Slope(DD) 7106.66
Curve(DDS) -216.717

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	32.67	.00
R-7	-3.89	1.76	-4.51
R-11	-4.51	1.36	-5.07
R-19	-5.07	1.00	-5.31
R-22	-5.31	.84	-5.63
R-30	-5.63	.63	-5.83
R-38	-5.83	.50	-5.98
R-49	-5.98	.41	-6.07
R-60	-6.07	.35	-6.07

Slope(DD) 6693.97
Curve(DDS) -115.167

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	32.67	.00
R-7	-3.89	1.76	-4.51
R-11	-4.51	1.36	-5.07
R-19	-5.07	1.00	-5.31
R-22	-5.31	.84	-5.63
R-30	-5.63	.63	-5.83
R-38	-5.83	.50	-5.98
R-49	-5.98	.41	-6.07
R-60	-6.07	.35	-6.07

Slope(DD) 6693.97
Curve(DDS) -115.167

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	32.67	.00
R-7	-3.89	1.76	-4.51
R-11	-4.51	1.36	-5.07
R-19	-5.07	1.00	-5.31
R-22	-5.31	.84	-5.63
R-30	-5.63	.63	-5.83
R-38	-5.83	.50	-5.98
R-49	-5.98	.41	-6.07
R-60	-6.07	.35	-6.07

Slope(DD) 6693.97
Curve(DDS) -115.167

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	32.67	.00
R-7	-3.89	1.76	-4.51
R-11	-4.51	1.36	-5.07
R-19	-5.07	1.00	-5.31
R-22	-5.31	.84	-5.63
R-30	-5.63	.63	-5.83
R-38	-5.83	.50	-5.98
R-49	-5.98	.41	-6.07
R-60	-6.07	.35	-6.07

Slope(DD) 6693.97
Curve(DDS) -115.167

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	32.67	.00
R-7	-3.89	1.76	-4.51
R-11	-4.51	1.36	-5.07
R-19	-5.07	1.00	-5.31
R-22	-5.31	.84	-5.63
R-30	-5.63	.63	-5.83
R-38	-5.83	.50	-5.98
R-49	-5.98	.41	-6.07
R-60	-6.07	.35	-6.07

Slope(DD) 6693.97
Curve(DDS) -115.167

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	4.29	.00
R-7	-3.89	1.76	-1.17
R-11	-4.51	1.36	-1.34
R-19	-5.07	1.00	-1.59
R-22	-5.31	.84	-1.72
R-30	-5.63	.63	-1.92
R-38	-5.83	.50	-2.05
R-49	-5.98	.41	-2.05
R-60	-6.07	.35	-2.05

Slope(DD) 938.34
Curve(DDS) -36.242

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	4.29	.00
R-7	-3.89	1.76	-1.17
R-11	-4.51	1.36	-1.34
R-19	-5.07	1.00	-1.59
R-22	-5.31	.84	-1.72
R-30	-5.63	.63	-1.92
R-38	-5.83	.50	-2.05
R-49	-5.98	.41	-2.05
R-60	-6.07	.35	-2.05

Slope(DD) 938.34
Curve(DDS) -36.242

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	4.29	.00
R-7	-3.89	1.76	-1.17
R-11	-4.51	1.36	-1.34
R-19	-5.07	1.00	-1.59
R-22	-5.31	.84	-1.72
R-30	-5.63	.63	-1.92
R-38	-5.83	.50	-2.05
R-49	-5.98	.41	-2.05
R-60	-6.07	.35	-2.05

Slope(DD) 938.34
Curve(DDS) -36.242

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	4.29	.00
R-7	-3.89	1.76	-1.17
R-11	-4.51	1.36	-1.34
R-19	-5.07	1.00	-1.59
R-22	-5.31	.84	-1.72
R-30	-5.63	.63	-1.92
R-38	-5.83	.50	-2.05
R-49	-5.98	.41	-2.05
R-60	-6.07	.35	-2.05

Slope(DD) 938.34
Curve(DDS) -36.242

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	4.29	.00
R-7	-3.89	1.76	-1.17
R-11	-4.51	1.36	-1.34
R-19	-5.07	1.00	-1.59
R-22	-5.31	.84	-1.72
R-30	-5.63	.63	-1.92
R-38	-5.83	.50	-2.05
R-49	-5.98	.41	-2.05
R-60	-6.07	.35	-2.05

Slope(DD) 938.34
Curve(DDS) -36.242

Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0	.00	4.29	.00
R-7	-3.89	1.76	-1.17
R-11	-4.51	1.36	-1.34
R-19	-5.07	1.00	-1.59
R-22	-5.31	.84	-1.72
R-30	-5.63	.63	-1.92
R-38	-5.83	.50	-2.05
R-49	-5.98	.41	-2.05
R-60	-6.07	.35	-2.05

Slope(DD) 938.34
Curve(DDS) -36.242

Base Load = 13.98 MBtu
Typical Load = 3.67 MBtu
Residual Load = -2.75 MBtu

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	12.95	R-7	-5.41	R-7	-1.48	R-7	-1.48
R-11	13.48	R-11	-6.18	R-11	-1.72	R-11	-1.72
R-19	10.03	R-13	-7.06	R-19	-1.93	R-13	-1.93
R-22	6.94	R-19	-7.49	R-22	-2.03	R-19	-2.03
R-30	5.86	R-27	-8.24	R-30	-2.17	R-27	-2.17
R-38	4.41	R-34	-8.70	R-38	-2.25	R-34	-2.25
R-49	3.53			R-49	-2.30		
R-60	2.80			R-60	-2.33		
	2.33						
Slope(DD)	6351.56	Slope(DD)	5838.51	Slope(DD)	999.08	Slope(DD)	284.17
Curve(DDS)	-74.038	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	4.27	R-7	-1.48	R-7	-1.48	R-7	-1.48
R-11	1.80	R-11	-6.18	R-11	-1.72	R-11	-1.72
R-19	1.41	R-13	-7.06	R-19	-1.93	R-13	-1.93
R-22	1.06	R-19	-7.49	R-22	-2.03	R-19	-2.03
R-30	.88	R-27	-8.24	R-30	-2.17	R-27	-2.17
R-38	.65	R-34	-8.70	R-38	-2.25	R-34	-2.25
R-49	.52			R-49	-2.30		
R-60	.43			R-60	-2.33		
	.38						
Slope(DD)	999.08	Slope(DD)	5838.51	Slope(DD)	999.08	Slope(DD)	284.17
Curve(DDS)	-46.931	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	4.27	R-7	-1.48	R-7	-1.48	R-7	-1.48
R-11	1.80	R-11	-6.18	R-11	-1.72	R-11	-1.72
R-19	1.41	R-13	-7.06	R-19	-1.93	R-13	-1.93
R-22	1.06	R-19	-7.49	R-22	-2.03	R-19	-2.03
R-30	.88	R-27	-8.24	R-30	-2.17	R-27	-2.17
R-38	.65	R-34	-8.70	R-38	-2.25	R-34	-2.25
R-49	.52			R-49	-2.30		
R-60	.43			R-60	-2.33		
	.38						
Slope(DD)	999.08	Slope(DD)	5838.51	Slope(DD)	999.08	Slope(DD)	284.17
Curve(DDS)	-46.931	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	4.27	R-7	-1.48	R-7	-1.48	R-7	-1.48
R-11	1.80	R-11	-6.18	R-11	-1.72	R-11	-1.72
R-19	1.41	R-13	-7.06	R-19	-1.93	R-13	-1.93
R-22	1.06	R-19	-7.49	R-22	-2.03	R-19	-2.03
R-30	.88	R-27	-8.24	R-30	-2.17	R-27	-2.17
R-38	.65	R-34	-8.70	R-38	-2.25	R-34	-2.25
R-49	.52			R-49	-2.30		
R-60	.43			R-60	-2.33		
	.38						
Slope(DD)	999.08	Slope(DD)	5838.51	Slope(DD)	999.08	Slope(DD)	284.17
Curve(DDS)	-46.931	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	4.27	R-7	-1.48	R-7	-1.48	R-7	-1.48
R-11	1.80	R-11	-6.18	R-11	-1.72	R-11	-1.72
R-19	1.41	R-13	-7.06	R-19	-1.93	R-13	-1.93
R-22	1.06	R-19	-7.49	R-22	-2.03	R-19	-2.03
R-30	.88	R-27	-8.24	R-30	-2.17	R-27	-2.17
R-38	.65	R-34	-8.70	R-38	-2.25	R-34	-2.25
R-49	.52			R-49	-2.30		
R-60	.43			R-60	-2.33		
	.38						
Slope(DD)	999.08	Slope(DD)	5838.51	Slope(DD)	999.08	Slope(DD)	284.17
Curve(DDS)	-46.931	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	4.27	R-7	-1.48	R-7	-1.48	R-7	-1.48
R-11	1.80	R-11	-6.18	R-11	-1.72	R-11	-1.72
R-19	1.41	R-13	-7.06	R-19	-1.93	R-13	-1.93
R-22	1.06	R-19	-7.49	R-22	-2.03	R-19	-2.03
R-30	.88	R-27	-8.24	R-30	-2.17	R-27	-2.17
R-38	.65	R-34	-8.70	R-38	-2.25	R-34	-2.25
R-49	.52			R-49	-2.30		
R-60	.43			R-60	-2.33		
	.38						
Slope(DD)	999.08	Slope(DD)	5838.51	Slope(DD)	999.08	Slope(DD)	284.17
Curve(DDS)	-46.931	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	4.27	R-7	-1.48	R-7	-1.48	R-7	-1.48
R-11	1.80	R-11	-6.18	R-11	-1.72	R-11	-1.72
R-19	1.41	R-13	-7.06	R-19	-1.93	R-13	-1.93
R-22	1.06	R-19	-7.49	R-22	-2.03	R-19	-2.03
R-30	.88	R-27	-8.24	R-30	-2.17	R-27	-2.17
R-38	.65	R-34	-8.70	R-38	-2.25	R-34	-2.25
R-49	.52			R-49	-2.30		
R-60	.43			R-60	-2.33		
	.38						
Slope(DD)	999.08	Slope(DD)	5838.51	Slope(DD)	999.08	Slope(DD)	284.17
Curve(DDS)	-46.931	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987

Pittsburgh PA WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load							
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)					
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)					
R-0	.00	36.01	.00	R-0	.00	4.32	.00				
R-7	-13.22	13.98	-7.99	R-7	-1.53	1.77	-.52				
R-11	-15.32	10.46	-9.13	R-11	-1.78	1.36	-.59				
R-19	-17.22	7.31	-10.47	R-19	-2.00	.99	-.70				
R-22	-17.90	6.17	-11.13	R-22	-2.09	.85	-.73				
R-30	-18.81	4.65	-12.27	R-30	-2.20	.66	-.62				
R-38	-19.36	3.74	-12.97	R-38	-2.27	.54	-.66				
R-49	-19.83	2.96	-12.97	R-49	-2.35	.41	-.82				
R-60	-20.13	2.46	-12.97	R-60	-2.40	.32	-.87				
Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)					
Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)					
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)					
R-0	-9.96	57.09	-7.13	R-0	-1.31	-11.47	-.79				
R-5	-11.29	23.84	-9.13	R-5	-1.24	-9.72	-.84				
R-5	-11.66	14.59	-9.71	R-5	-1.20	-8.72	-.84				
R-10	-11.52	18.09	-9.60	R-10	-1.23	-9.47	-.85				
R-10	-12.01	5.84	-10.43	R-10	-1.17	-7.97	-.85				
Intercept	-18.541	.000	Intercept	-4.722	Intercept	.000	.000				
Slope(DD)	7347.53	4602.86	Slope(DD)	-1102.62	Slope(DD)	-9.95	-9.95				
Curve(DDS)	-59.963	-35.206	Curve(DDS)	44.735	Curve(DDS)	1.201	1.201				
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)					
R-0	-7.13	8.52	.00	R-0	-.79	.10	.00				
R-11	-10.87	2.29	-10.44	R-11	-.18	1.12	.37				
R-19	-12.11	.22	-12.19	R-19	.00	1.42	.44				
R-30	-12.91	-1.11	-13.27	R-30	.12	1.62	.56				
R-38			-13.52	R-38			.59				
R-49			-14.23	R-49			.67				
Intercept	-4.792	-6.054	Intercept	2.151	Intercept	2.705	2.705				
Slope(DD)	5056.04	5566.98	Slope(DD)	-727.25	Slope(DD)	-499.35	-499.35				
Curve(DDS)	-479.643	-79.355	Curve(DDS)	63.887	Curve(DDS)	48.468	48.468				
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)					
ELF Ach				ELF Ach							
.0007(.81)	.00	17.31	.00	.0007(.50)	.00	.14	.00				
.0005(.58)	-6.46	11.93	-11.06	.0005(.36)	-.06	.09	.09				
.0003(.36)	-12.50	6.89	-14.33	.0003(.22)	-.11	.05	.15				
			-18.18				.23				
Slope/.001ELF		Slope(DD)		Slope/.001ELF		Slope(DD)					
Curve/.001ELF		Curve(DDS)		Curve/.001ELF		Curve(DDS)					
21.666		5261.05		.125		-138.93					
4.376		-.387		.104		2.522					
Base Load = 82.20 MBtu				Base Load = 9.53 MBtu							
Typical Load = 25.06 MBtu				Typical Load = 5.70 MBtu							
Residual Load = 1.52 MBtu				Residual Load = 2.05 MBtu							

Portland ME	WYEC	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (MBtu)		Delta Component (Kbtu)	
						Ceiling (/sf)		Wall (/sf)	
R-0	.00	43.68	.00	38.64	R-0	.00	2.58	R-0	.00
R-7	-16.00	17.01	-9.62	18.45	R-7	-9.00	1.09	R-7	-0.27
R-11	-18.56	12.75	-10.99	15.57	R-11	-1.04	.85	R-11	.55
R-19	-20.85	8.93	-12.60	12.19	R-19	-1.17	.63	R-13	.47
R-22	-21.68	7.55	-13.40	10.52	R-22	-1.23	.54	R-19	.36
R-30	-22.78	5.71	-14.81	7.57	R-30	-1.30	.41	R-27	.30
R-38	-23.45	4.59	-15.67	5.75	R-38	-1.35	.33	R-34	.23
R-49	-24.03	3.62			R-49	-1.39	.26		.18
R-60	-24.41	2.99			R-60	-1.42	.22		.13
						Slope(DD)	8236.49	Slope(DD)	226.35
						Curve(DDS)	-146.711	Curve(DDS)	-3.244
						Slab		Heated Basement	
R-0	-11.12	68.24	-7.74	152.74	R-0	-92	-7.24	R-0	-67
R-5	-12.77	26.99	-10.06	94.74	R-5	-85	-5.49	R-5	-70
R-5	-13.23	15.49	-10.76	77.24	R-5	-81	-4.49	R-5	-68
R-10	-13.06	19.74	-10.62	80.74	R-10	-83	-4.99	R-10	-70
R-10	-13.70	3.74	-11.63	55.49	R-10	-77	-3.49	R-10	-68
						Intercept	.000	Intercept	.000
						Slope(DD)	9286.11	Slope(DD)	-138.95
						Curve(DDS)	-101.384	Curve(DDS)	2.789
						Unheated Basement (/sf)		Crawl	
R-0	-7.74	10.18	.00	23.08	R-0	-67	-.07	R-0	.00
R-11	-12.56	2.15	-12.43	2.37	R-11	-69	.90	R-11	.43
R-19	-14.19	-.57	-14.56	-1.18	R-19	.08	1.18	R-19	.47
R-30	-15.24	-2.32	-15.90	-3.41	R-30	.19	1.37	R-30	.53
R-38			-18.20	-3.92	R-38			R-38	.54
R-49			-17.08	-5.38	R-49			R-49	.58
						Intercept	-8.765	Intercept	2.071
						Slope(DD)	6904.81	Slope(DD)	-186.31
						Curve(DDS)	-135.363	Curve(DDS)	-2.485
						Infiltration (/sf flr)		Window U-value	
						ELF Ach			
						.0007(.76)	.00	1-Pane	.00
						.0005(.56)	-7.60	2-Pane	.14
						.0003(.34)	-14.77	3-Pane	.20
								R-10	.27
						Slope(DD)	26.291	Slope(DD)	-113.30
						Curve/.001ELF	4.479	Curve(DDS)	1.229
						Base Load =	99.28 MBtu	Base Load =	5.65 MBtu
						Typical Load =	31.20 MBtu	Typical Load =	3.32 MBtu
						Residual Load =	2.86 MBtu	Residual Load =	1.81 MBtu

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)	Delta Component (KBtu)	Delta Component (MBtu)		Delta Component (KBtu)	Delta Component (KBtu)
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-38.49	R-7	-22.44	R-7	-2.25	R-7	-.62
R-11	-44.63	R-11	-25.64	R-11	-2.61	R-11	-.71
R-19	-50.15	R-13	-29.57	R-19	-2.93	R-13	-.85
R-22	-52.30	R-19	-31.52	R-22	-3.05	R-19	-.92
R-30	-55.18	R-27	-35.10	R-30	-3.22	R-27	-1.01
R-38	-56.92	R-34	-37.30	R-38	-3.43	R-34	-1.07
R-49	-58.49			R-49	-3.43		
R-60	-59.50			R-60	-3.50		
Slope(DD)	8581.06	Slope(DD)	8171.02	Slope(DD)	521.58	Slope(DD)	260.40
Curve(DDS)	-260.244	Curve(DDS)	-156.213	Curve(DDS)	-18.164	Curve(DDS)	-8.417
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-21.87	R-0	-12.19	R-0	-2.17	R-0	-1.55
R-5	-28.52	R-5	-18.68	R-5	-2.02	R-5	-1.71
R-10	-30.52	R-5	-21.09	R-10	-1.93	R-5	-1.72
R-10	-29.78	R-10	-20.42	R-10	-1.99	R-10	-1.76
R-10	-32.59	R-10	-24.18	R-10	-1.88	R-10	-1.75
Intercept	-35.291	Intercept	.000	Intercept	.757	Intercept	.000
Slope(DD)	10502.82	Slope(DD)	5147.78	Slope(DD)	-462.33	Slope(DD)	-6.27
Curve(DDS)	-178.732	Curve(DDS)	-52.374	Curve(DDS)	16.075	Curve(DDS)	.901
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-12.19	R-0	.00	R-0	-1.55	R-0	.00
R-11	-32.26	R-11	-33.99	R-11	-.25	R-11	.65
R-19	-37.80	R-19	-39.88	R-19	.13	R-19	.74
R-30	-41.36	R-30	-43.66	R-30	.38	R-30	.86
R-38	-49.44	R-38	-44.52	R-38	.72	R-38	.89
R-49	-58.49	R-49	-47.01	R-49	.97	R-49	.97
Intercept	-11.875	Intercept	-13.023	Intercept	1.824	Intercept	1.839
Slope(DD)	8429.10	Slope(DD)	7589.09	Slope(DD)	-593.01	Slope(DD)	-187.09
Curve(DDS)	-687.412	Curve(DDS)	-178.930	Curve(DDS)	51.452	Curve(DDS)	10.003
Infiltration	(/sf f/r)	Window U-value	(/sf)	Infiltration	(/sf f/r)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.75)	.00	1-Pane	.00	.0007(.47)	.00	1-Pane	.00
.0005(.54)	-10.03	2-Pane	-18.05	.0005(.34)	-.08	2-Pane	-.01
.0003(.33)	-19.94	3-Pane	-24.18	.0003(.20)	-.12	3-Pane	-.02
	9.51	R-10	-31.40			R-10	-.03
Slope/.001ELF	31.396	Slope(DD)	8269.54	Slope/.001ELF	.455	Slope(DD)	16.09
Curve/.001ELF	.974	Curve(DDS)	-41.873	Curve/.001ELF	-.162	Curve(DDS)	-.325
Base Load =	207.17 MBtu	Base Load =	7.61 MBtu	Base Load =	1.57 MBtu	Base Load =	1.57 MBtu
Typical Load =	71.97 MBtu	Typical Load =	10.68 MBtu	Typical Load =	1.57 MBtu	Typical Load =	1.57 MBtu
Residual Load =	10.68 MBtu	Residual Load =	10.68 MBtu	Residual Load =	1.57 MBtu	Residual Load =	1.57 MBtu

Portland OR		WYEC		One Story Prototype Siding		Series Two	
				Heating Load		Cooling Load	
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-25.47	R-7	-14.43	R-7	-2.97	R-7	-1.82
R-11	-29.54	R-11	-16.49	R-11	-3.44	R-11	-1.09
R-19	-33.19	R-13	-19.03	R-19	-3.87	R-13	-1.30
R-22	-34.61	R-19	-20.29	R-22	-4.06	R-19	-1.40
R-30	-36.50	R-27	-22.43	R-30	-4.32	R-27	-1.57
R-38	-37.65	R-34	-23.75	R-38	-4.47	R-34	-1.67
R-49	-38.63			R-49	-4.62		
R-60	-39.27			R-60	-4.71		
Slope(DD)	5574.50	Slope(DD)	4974.69	Slope(DD)	791.95	Slope(DD)	433.76
Curve(DDS)	-157.161	Curve(DDS)	-61.254	Curve(DDS)	-38.553	Curve(DDS)	-17.818
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-10.40	R-0	-6.06	R-0	-2.14	R-0	-1.41
R-5	-15.16	R-5	-9.84	R-5	-1.96	R-5	-1.50
R-10	-16.77	R-5	-11.63	R-5	-1.89	R-5	-1.46
R-10	-15.97	R-10	-10.88	R-10	-1.93	R-10	-1.52
R-10	-18.13	R-10	-13.59	R-10	-1.80	R-10	-1.48
Intercept	74.229	Intercept	92.364	Intercept	-12.889	Intercept	-12.61
Slope(DD)	7444.40	Slope(DD)	3513.81	Slope(DD)	-521.13	Slope(DD)	-53.37
Curve(DDS)	-128.954	Curve(DDS)	-38.182	Curve(DDS)	17.948	Curve(DDS)	1.238
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-6.06	R-0	.00	R-0	-1.41	R-0	.00
R-11	-20.34	R-11	-22.86	R-11	-.42	R-11	.56
R-19	-24.24	R-19	-26.69	R-19	-.18	R-19	.58
R-30	-26.75	R-30	-29.04	R-30	-.03	R-30	.60
Intercept	.810	Intercept	-31.13	Intercept	-.159	R-38	.61
Slope(DD)	5922.28	Slope(DD)	4723.67	Slope(DD)	-347.51	R-49	.63
Curve(DDS)	-478.039	Curve(DDS)	-63.833	Curve(DDS)	23.855	Intercept	.000
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.68)	12.26	2-Pane	-10.95	.0007(.60)	.10	2-Pane	-.30
.0005(.50)	8.29	3-Pane	-14.14	.0005(.43)	.02	3-Pane	-.20
.0003(.30)	4.69	R-10	-17.89	.0003(.26)	-.01	R-10	.03
Slope/.001ELF	14.220	Slope(DD)	3959.09	Slope/.001ELF	-.195	Slope(DD)	-38.68
Curve/.001ELF	4.708	Curve(DDS)	2.313	Curve/.001ELF	.487	Curve(DDS)	1.110
Base Load = 130.27 MBtu		Base Load = 9.91 MBtu		Base Load = 9.91 MBtu		Base Load = 9.91 MBtu	
Typical Load = 51.61 MBtu		Typical Load = 6.39 MBtu		Typical Load = 6.39 MBtu		Typical Load = 6.39 MBtu	
Residual Load = -2.47 MBtu		Residual Load = .21 MBtu		Residual Load = .21 MBtu		Residual Load = .21 MBtu	

Portland ME	WYEC	MApartment Prototype Siding	Series Two	Cooling Load		
		Heating Load				
		Delta Component (MBtu)	Delta Component (MBtu)	Delta Component (MBtu)	Delta Component (MBtu)	
		Ceiling (/sf)	Ceiling (/sf)	Wall (/sf)	Wall (/sf)	
R-0	.00	42.46	.00	R-0	.00	
R-7	-15.63	16.40	-6.54	R-7	-1.16	
R-11	-18.13	12.24	-7.47	R-11	.69	
R-19	-20.37	8.51	-8.53	R-19	.62	
R-22	-21.16	7.18	-9.06	R-22	.61	
R-30	-22.23	5.41	-9.98	R-30	.44	
R-38	-22.87	4.34	-10.55	R-38	.35	
R-49	-23.41	3.44	-10.55	R-49	.30	
R-60	-23.76	2.86	-1.39	R-60	.26	
		Slope(DD)	7811.62	Slope(DD)	316.15	
		Curve(DDS)	-109.681	Curve(DDS)	-18.667	
		Slab (/ft)	Slab (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	
R-0	-12.29	86.01	R-0	-59	R-0	-48
R-5 2ft	-13.60	42.51	R-5 2ft	-55	R-5 4ft	-50
R-5 4ft	-13.99	29.51	R-5 4ft	-51	R-5 8ft	-49
R-10 2ft	-13.84	34.51	R-10 2ft	-52	R-10 4ft	-50
R-10 4ft	-14.37	16.68	R-10 4ft	-49	R-10 8ft	-49
Intercept	-20.126	.000	Intercept	2.903	Intercept	.000
Slope(DD)	10770.26	6007.42	Slope(DD)	-1156.62	Slope(DD)	-100.72
Curve(DDS)	-159.019	-40.720	Curve(DDS)	47.982	Curve(DDS)	2.119
		Unheated Basement (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Crawl (/sf)	
R-0	-9.53	8.91	R-0	-48	R-0	.77
R-11 flr	-13.45	2.38	R-11 flr	-07	R-11 flr	.33
R-19 flr	-14.86	.02	R-19 flr	.06	R-19 flr	.41
R-30 flr	-15.77	-1.49	R-30 flr	.13	R-30 flr	.46
Intercept	-5.726	-7.816	Intercept	1.351	R-38 flr	.46
Slope(DD)	5840.46	7071.35	Slope(DD)	-482.57	R-49 flr	.49
Curve(DDS)	-582.407	-139.250	Curve(DDS)	41.668	Intercept	1.730
		Infiltration (/sf flr) Window U-value	Infiltration (/sf flr) Window U-value	ELF Ach	Slope(DD)	-261.50
ELF Ach	.0007(.76)	.00	ELF Ach	.0007(.47)	Curve(DDS)	14.651
1-Pane	.00	20.61	1-Pane	.00	1-Pane	.00
2-Pane	-7.57	14.30	2-Pane	-02	2-Pane	.11
3-Pane	-14.73	8.33	3-Pane	-03	3-Pane	.19
R-10	-22.36	17.74	R-10	.0003(.20)	R-10	.28
		Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	-175.75
		Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	3.300
		Base Load = 93.42 MBtu	Base Load = 4.71 MBtu	Typical Load = 2.71 MBtu	Typical Load = 1.19 MBtu	Residual Load = 1.19 MBtu

Portland OR	WYEC	One Story Prototype Siding	Series Two	Heating Load				Cooling Load			
				Delta Component (MBtu)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)	
				Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
				R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
				R-7	R-7	R-7	R-7	R-7	R-7	R-7	R-7
				R-11	R-11	R-11	R-11	R-11	R-11	R-11	R-11
				R-13	R-13	R-13	R-13	R-13	R-13	R-13	R-13
				R-19	R-19	R-19	R-19	R-19	R-19	R-19	R-19
				R-22	R-22	R-22	R-22	R-22	R-22	R-22	R-22
				R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30
				R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38
				R-49	R-49	R-49	R-49	R-49	R-49	R-49	R-49
				R-60	R-60	R-60	R-60	R-60	R-60	R-60	R-60
				Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
				Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
				Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement
				R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
				R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft
				R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft
				R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft
				R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft
				Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept
				Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
				Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
				Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl
				R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
				R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr
				R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr
				R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr
				R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr	R-38 flr
				R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr	R-49 flr
				Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept	Intercept
				Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
				Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
				Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value
				ELF Ach	1-Pane	ELF Ach	1-Pane	ELF Ach	1-Pane	ELF Ach	1-Pane
				.0007(.68)	.00	.0007(.68)	.00	.0007(.68)	.00	.0007(.68)	.00
				.0005(.50)	-6.12	.0005(.50)	-6.12	.0005(.50)	-6.12	.0005(.50)	-6.12
				.0003(.30)	-11.66	.0003(.30)	-11.66	.0003(.30)	-11.66	.0003(.30)	-11.66
					4.69		4.69		4.69		4.69
				Slope/.001ELF	14.220	Slope(DD)	3959.09	Slope/.001ELF	-195	Slope(DD)	-38.68
				Curve/.001ELF	4.708	Curve(DDS)	2.313	Curve/.001ELF	.487	Curve(DDS)	1.110
				Base Load =	130.27 MBtu	Base Load =	9.91 MBtu	Base Load =	9.91 MBtu	Base Load =	9.91 MBtu
				Typical Load =	51.61 MBtu	Typical Load =	5.39 MBtu	Typical Load =	5.39 MBtu	Typical Load =	5.39 MBtu
				Residual Load =	-2.47 MBtu	Residual Load =	.21 MBtu	Residual Load =	.21 MBtu	Residual Load =	.21 MBtu

Portland OR	WYEC	Mid Town	Prototype	Siding	Series Two	Heating Load				Cooling Load			
						Delta Component		Delta Component		Delta Component		Delta Component	
						(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)	(MBtu)	(/sf)
						Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
R-0	.00	28.78	.00	24.59	R-0	.00	3.33	R-0	.00	3.33	R-0	.00	1.83
R-7	-10.64	11.05	-6.31	11.34	R-7	-6.31	1.36	R-7	-1.18	1.36	R-7	-.39	1.03
R-11	-12.33	8.22	-7.21	9.46	R-11	-7.21	1.04	R-11	-1.37	1.04	R-11	-.44	.91
R-19	-13.86	5.68	-8.24	7.30	R-13	-8.24	.76	R-19	-1.54	.76	R-13	-.54	.70
R-22	-14.39	4.79	-8.75	6.23	R-19	-8.75	.64	R-22	-1.61	.64	R-19	-.59	.60
R-30	-15.11	3.60	-9.57	4.50	R-27	-9.57	.49	R-30	-1.70	.49	R-27	-.66	.45
R-38	-15.54	2.88	-10.08	3.44	R-34	-10.08	.31	R-38	-1.76	.39	R-27	-.66	.45
R-49	-15.89	2.29	-10.81		R-49	-10.81	.31	R-49	-1.81	.31	R-34	-.70	.36
R-60	-16.12	1.91	-11.84		R-60	-11.84	.26	R-60	-1.84	.26	R-34	-.70	.36
						Slope(DD)	5190.69	Slope(DD)	4351.71	Slope(DD)	715.13	Slope(DD)	472.58
						Curve(DDS)	-56.826	Curve(DDS)	40.950	Curve(DDS)	-25.998	Curve(DDS)	-24.443
						Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement
R-0	-6.04	159.22	-4.35	201.47	R-0	-4.35	25.60	R-0	-.80	25.60	R-0	-.48	17.60
R-5	-7.19	130.47	-5.75	166.47	R-5	-5.75	24.10	R-5	-.74	24.10	R-5	-.49	17.85
R-5	-7.55	121.47	-6.26	153.72	R-5	-6.26	23.60	R-5	-.72	23.60	R-5	-.47	17.35
R-10	-7.37	125.97	-6.08	158.22	R-10	-6.08	23.85	R-10	-.73	23.85	R-10	-.49	17.85
R-10	-7.84	114.22	-6.78	140.72	R-10	-6.78	22.85	R-10	-.69	22.85	R-10	-.47	17.35
Intercept	92.158		Intercept	104.690	Intercept	-20.766		Intercept	-69.271		Intercept	-16.271	
Slope(DD)	6212.07		Slope(DD)	3491.21	Slope(DD)	-655.04		Slope(DD)	-655.04		Slope(DD)	-112.97	
Curve(DDS)	-63.231		Curve(DDS)	-28.335	Curve(DDS)	21.400		Curve(DDS)	21.400		Curve(DDS)	1.933	
						Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl
R-0	-4.35	13.43	.00	20.68	R-0	-.48	1.17	R-0	-.48	1.17	R-0	.00	-.37
R-11	-7.86	7.58	-8.32	6.81	R-11	-.08	-.51	R-11	-.08	-.51	R-11	.22	-.01
R-19	-8.99	5.69	-9.68	4.55	R-19	.01	-.36	R-19	.01	-.36	R-19	.23	.01
R-30	-9.72	4.48	-10.47	3.23	R-30	.06	-.27	R-30	.06	-.27	R-30	.23	.01
R-38			-10.65	2.93	R-38			R-38			R-38	.23	.01
R-49			-11.17	2.08	R-49			R-49			R-49	.23	.01
Intercept	1.140		Intercept	.000	Intercept	-.041		Intercept	-.041		Intercept	.000	
Slope(DD)	4582.73		Slope(DD)	4099.59	Slope(DD)	-308.08		Slope(DD)	-308.08		Slope(DD)	30.11	
Curve(DDS)	-426.235		Curve(DDS)	-12.932	Curve(DDS)	17.038		Curve(DDS)	17.038		Curve(DDS)	-20.058	
						Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value
ELF Ach	(/sf flr)	(/sf flr)	ELF Ach	(/sf flr)	ELF Ach	(/sf flr)		ELF Ach	(/sf flr)	ELF Ach	(/sf flr)	ELF Ach	(/sf flr)
.0007(.70)	.00	11.00	.00	93.36	.0007(.60)	.00	-.00	.0007(.60)	.00	-.00	.00	.00	1.40
.0005(.51)	-4.62	7.15	-8.26	35.99	.0005(.43)	-.05	-.04	.0005(.43)	-.05	-.04	.07	-.91	
.0003(.32)	-8.56	3.86	-10.21	22.43	.0003(.26)	-.06	-.05	.0003(.26)	-.06	-.05	.12	-.60	
			-12.51	6.48							.17	-.22	
						Slope(DD)	2678.81	Slope(DD)	2678.81	Slope(DD)	2678.81	Slope(DD)	2678.81
						Curve(DDS)	32.476	Curve(DDS)	32.476	Curve(DDS)	32.476	Curve(DDS)	32.476
						Base Load =	60.51 MBtu	Base Load =	60.51 MBtu	Base Load =	6.67 MBtu	Base Load =	6.67 MBtu
						Typical Load =	26.50 MBtu	Typical Load =	26.50 MBtu	Typical Load =	4.86 MBtu	Typical Load =	4.86 MBtu
						Residual Load =	1.49 MBtu	Residual Load =	1.49 MBtu	Residual Load =	2.09 MBtu	Residual Load =	2.09 MBtu

Portland OR	WYEC	MApartment Prototype Siding	Series Two	Heating Load			Cooling Load		
				Delta Component (MBtu)			Delta Component (MBtu)		
				Ceiling	Wall		Ceiling	Wall	
R-0	.00	28.53	.00	24.51	R-0	.00	3.27	R-0	.00
R-7	-10.63	10.82	-4.26	11.06	R-7	-1.16	1.33	R-7	-1.82
R-11	-12.33	7.99	-4.87	9.15	R-11	-1.35	1.02	R-11	-1.03
R-19	-13.85	5.45	-5.54	7.03	R-19	-1.51	.75	R-13	.72
R-22	-14.37	4.58	-5.88	5.98	R-22	-1.58	.63	R-19	.62
R-30	-15.06	3.42	-6.40	4.31	R-30	-1.67	.48	R-27	.47
R-38	-15.48	2.72	-6.73	3.28	R-38	-1.73	.39	R-34	.34
R-49	-15.81	2.18			R-49	-1.78	.31		
R-60	-16.01	1.84			R-60	-1.81	.25		
				Slope(DD)	Slope(DD)		Slope(DD)	Slope(DD)	
Curve(DDS)	-20.992	4936.64	81.420	4119.19	Curve(DDS)	-25.403	702.21	488.64	488.64
				Slab	Heated Basement		Slab	Heated Basement	
R-0	-6.95	188.34	-5.63	232.51	R-0	-54	-22.64	R-0	-40
R-5	-7.88	157.51	-6.93	189.01	R-5	-49	-21.14	R-5	-41
R-10	-8.04	152.34	-7.38	174.17	R-10	-48	-20.80	R-5	-41
R-10 4ft	-8.44	139.01	-7.23	179.01	R-10 4ft	-49	-20.97	R-10 4ft	-42
Intercept	113.042		-7.85	158.34	R-10 4ft	-46	-19.97	R-10 4ft	-42
Slope(DD)	7416.76		Intercept	116.116	Intercept	-18.035		Intercept	-41
Curve(DDS)	-106.752		Slope(DD)	4073.19	Slope(DD)	-620.68		Slope(DD)	-17.783
				Unheated Basement	Crawl		Unheated Basement	Crawl	
R-0	-5.63	11.63	.00	21.01	R-0	-40	-91	R-0	.00
R-11	-8.49	6.85	-8.51	6.82	R-11	-15	-49	R-11	.14
R-19	-9.50	5.18	-9.87	4.56	R-19	-08	-37	R-19	.15
R-30	-10.14	4.11	-10.67	3.22	R-30	-03	-29	R-30	.15
R-38			-10.85	2.92	R-38			R-38	.15
R-49			-11.38	2.04	R-49			R-49	.15
Intercept	1.118		Intercept	.000	Intercept	-078		Intercept	.000
Slope(DD)	4118.02		Slope(DD)	4077.34	Slope(DD)	-289.27		Slope(DD)	24.04
Curve(DDS)	-403.488		Curve(DDS)	3.839	Curve(DDS)	24.890		Curve(DDS)	-13.818
				Infiltration	Window U-value		Infiltration	Window U-value	
ELF Ach			ELF Ach		ELF Ach		ELF Ach		
.0007(.70)	.00	10.77	.00	91.80	.0007(.60)	.00	.04	1-Pane	.00
.0005(.53)	-4.58	6.95	-8.28	34.27	.0005(.43)	-04	.00	2-Pane	.00
.0003(.32)	-8.45	3.72	-10.16	21.28	.0003(.26)	-06	-01	3-Pane	.04
			R-10	-12.35	6.00			R-10	.09
				Slope(DD)	Slope(DD)		Slope(DD)	Slope(DD)	
Curve/.001ELF	10.166	7.449	Curve(DDS)	2461.00	Curve/.001ELF	-125	.260	Curve(DDS)	-105.42
				Base Load =	Base Load =		Base Load =	Base Load =	
Typical Load =			Typical Load =		Typical Load =		Typical Load =	Typical Load =	
Residual Load =			Residual Load =		Residual Load =		Residual Load =	Residual Load =	

[illegible]

Reno NV	TMY	Mid Town	Prototype	Siding	Series Two	Cooling Load			
						Heating Load			
						Delta Component (KBtu)		Delta Component (KBtu)	
						Ceiling	Wall	Ceiling	Wall
						(/sf)	(/sf)	(/sf)	(/sf)
						R-0	R-0	R-0	R-0
						R-7	R-7	R-7	R-7
						R-11	R-11	R-11	R-11
						R-19	R-13	R-19	R-13
						R-22	R-19	R-22	R-19
						R-30	R-27	R-30	R-27
						R-38	R-34	R-38	R-34
						R-49	R-49	R-49	R-49
						R-60	R-60	R-60	R-60
						Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
						Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
						Slab	Slab	Slab	Slab
						(/ft)	(/ft)	(/ft)	(/ft)
						Heated Basement	Heated Basement	Heated Basement	Heated Basement
						R-0	R-0	R-0	R-0
						R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft
						R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft
						R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft
						R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft
						Intercept	Intercept	Intercept	Intercept
						Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
						Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
						Unheated Basement	Unheated Basement	Unheated Basement	Unheated Basement
						(/sf)	(/sf)	(/sf)	(/sf)
						R-0	R-0	R-0	R-0
						R-11 flr	R-11 flr	R-11 flr	R-11 flr
						R-19 flr	R-19 flr	R-19 flr	R-19 flr
						R-30 flr	R-30 flr	R-30 flr	R-30 flr
						R-49 flr	R-49 flr	R-49 flr	R-49 flr
						Intercept	Intercept	Intercept	Intercept
						Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
						Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
						Infiltration	Infiltration	Infiltration	Infiltration
						ELF Ach	ELF Ach	ELF Ach	ELF Ach
						.0007(.67)	.0007(.51)	.0007(.51)	.0007(.51)
						.0005(.49)	.0005(.37)	.0005(.37)	.0005(.37)
						.0003(.30)	.0003(.22)	.0003(.22)	.0003(.22)
						Slope/.001ELF	Slope/.001ELF	Slope/.001ELF	Slope(.DD)
						Curve/.001ELF	Curve/.001ELF	Curve(.DD)	Curve(DDS)
						Base Load =	Base Load =	Base Load =	Base Load =
						Typical Load =	Typical Load =	Typical Load =	Typical Load =
						Residual Load =	Residual Load =	Residual Load =	Residual Load =

Reno NV	TMY	MApartment Prototype Siding		Series Two	
		Heating Load		Cooling Load	
		Delta Component (KBtu)		Delta Component (KBtu)	
		Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0	.00	33.51	.00	.00	.00
R-7	-12.61	12.49	-4.81	9.25	3.81
R-11	-14.63	9.14	-5.50	3.76	2.00
R-19	-16.44	6.12	-6.24	2.88	1.74
R-22	-17.02	5.14	-6.61	2.09	1.30
R-30	-17.81	3.83	-7.16	1.78	.86
R-38	-18.28	3.04	-7.49	1.36	.83
R-49	-18.64	2.44		1.11	.99
R-60	-18.88	2.06		.86	.68
		Slope(DD)	5491.16	Slope(DD)	1973.92
		Curve(DDS)	27.255	Curve(DDS)	-69.800
		Delta Component (KBtu)		Delta Component (KBtu)	
		Slab (/ft)		Slab (/ft)	
R-0	-9.04	42.34	-6.79	-84	-68
R-5 2ft	-9.83	15.84	-8.56	2ft	4ft
R-5 4ft	-9.97	11.18	-8.86	4ft	8ft
R-10 2ft	-9.97	11.18	-8.91	10 2ft	10 4ft
R-10 4ft	-10.16	5.01	-9.32	10 4ft	8ft
Intercept	-8.439		Intercept	Intercept	Intercept
Slope(DD)	4899.81		Slope(DD)	Slope(DD)	Slope(DD)
Curve(DDS)	69.229		Curve(DDS)	Curve(DDS)	Curve(DDS)
		Delta Component (KBtu)		Delta Component (KBtu)	
		Unheated Basement (/sf)		Unheated Basement (/sf)	
R-0	-6.79	5.86	.00	-68	-14
R-11 flr	-9.09	2.03	-8.24	11 flr	11 flr
R-19 flr	-9.90	.69	-9.58	19 flr	19 flr
R-30 flr	-10.41	-1.17	-10.31	30 flr	30 flr
Intercept	-2.574		-10.47	49 flr	49 flr
Slope(DD)	3304.03		-10.94	Intercept	Intercept
Curve(DDS)	-323.638		-3.046	Slope(DD)	Slope(DD)
		Delta Component (KBtu)		Delta Component (KBtu)	
		Infiltration (/sf flr)		Infiltration (/sf flr)	
		Window U-value (/sf)		Window U-value (/sf)	
		ELF Ach		ELF Ach	
		1-Pane		1-Pane	
		2-Pane		2-Pane	
		3-Pane		3-Pane	
		R-10		R-10	
		Slope(DD)		Slope(DD)	
		Curve(DDS)		Curve(DDS)	
		Base Load =		Base Load =	
		Typical Load =		Typical Load =	
		Residual Load =		Residual Load =	

Salt Lake City U WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-29.20	R-7	-17.45	R-7	-7.74	R-7	-2.19
R-11	-33.86	R-11	-19.94	R-11	-8.98	R-11	-2.50
R-19	-38.05	R-13	-22.98	R-19	-10.09	R-13	-2.95
R-22	-39.69	R-19	-24.48	R-22	-10.52	R-19	-3.17
R-30	-41.88	R-27	-27.16	R-30	-11.09	R-27	-3.48
R-38	-43.20	R-34	-28.80	R-38	-11.44	R-34	-3.67
R-49	-44.37			R-49	-11.78		
R-60	-45.13			R-60	-12.00		
Slope(DD)	6501.41	Slope(DD)	6119.81	Slope(DD)	1749.57	Slope(DD)	816.86
Curve(DDS)	-196.052	Curve(DDS)	-89.324	Curve(DDS)	-55.782	Curve(DDS)	-16.698
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-17.74	R-0	-10.13	R-0	-5.31	R-0	-3.21
R-5 2ft	-22.89	R-5 4ft	-15.74	R-5 2ft	-5.26	R-5 4ft	-3.74
R-5 4ft	-24.35	R-5 8ft	-17.66	R-5 8ft	-5.19	R-5 8ft	-3.77
R-10 2ft	-23.84	R-10 4ft	-17.22	R-10 2ft	-5.25	R-10 4ft	-3.87
R-10 4ft	-25.88	R-10 8ft	-20.18	R-10 8ft	-5.14	R-10 8ft	-3.97
Intercept	-19.737	Intercept	.000	Intercept	-3.957	Intercept	.000
Slope(DD)	7398.48	Slope(DD)	3995.10	Slope(DD)	-521.72	Slope(DD)	137.37
Curve(DDS)	-100.445	Curve(DDS)	-37.699	Curve(DDS)	25.501	Curve(DDS)	.267
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-10.13	R-0	.00	R-0	-3.21	R-0	.00
R-11 flr	-24.60	R-11 flr	-25.27	R-11 flr	-1.68	R-11 flr	.25
R-19 flr	-28.54	R-19 flr	-29.63	R-19 flr	-1.27	R-19 flr	.17
R-30 flr	-31.07	R-30 flr	-32.32	R-30 flr	-1.01	R-30 flr	.10
		R-38 flr	-32.93			R-38 flr	.09
		R-49 flr	-34.70			R-49 flr	.05
Intercept	-7.158	Intercept	-7.808	Intercept	2.541	Intercept	2.682
Slope(DD)	5971.77	Slope(DD)	5463.41	Slope(DD)	-615.08	Slope(DD)	192.32
Curve(DDS)	-480.084	Curve(DDS)	-106.074	Curve(DDS)	48.354	Curve(DDS)	-35.193
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.78)	15.05	2-Pane	-13.59	.0007(.52)	.54	2-Pane	.56
.0005(.56)	10.56	3-Pane	-18.08	.0005(.37)	.34	3-Pane	.79
.0003(.34)	6.23	R-10	-23.35	.0003(.22)	.18	R-10	-1.05
Slope/.001ELF	20.195	Slope(DD)	5960.31	Slope/.001ELF	.487	Slope(DD)	325.76
Curve/.001ELF	1.867	Curve(DDS)	-24.559	Curve/.001ELF	.406	Curve(DDS)	-3.112
Base Load = 149.99 MBtu				Base Load = 26.60 MBtu			
Typical Load = 46.07 MBtu				Typical Load = 7.39 MBtu			
Residual Load = 6.31 MBtu				Residual Load = -3.26 MBtu			

Salt Lake City U WYEC			Mid Town Prototype Siding			Series Two		
Heating Load			Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0	R-0	.00	R-0
R-7	-12.16	R-7	R-7	-7.35	R-7	R-7	-3.03	R-7
R-11	-14.10	R-11	R-11	-8.40	R-11	R-11	-3.52	R-11
R-19	-15.84	R-19	R-19	-9.60	R-19	R-19	-3.95	R-19
R-22	-16.46	R-22	R-22	-10.20	R-22	R-22	-4.11	R-22
R-30	-17.28	R-30	R-30	-11.19	R-30	R-30	-4.33	R-30
R-38	-17.78	R-38	R-38	-11.79	R-38	R-38	-4.46	R-38
R-49	-18.20	R-49	R-49	-11.79	R-49	R-49	-4.60	R-49
R-60	-18.47	R-60	R-60	-11.79	R-60	R-60	-4.69	R-60
Slope(DD)	6057.26	Slope(DD)	Slope(DD)	5193.93	Slope(DD)	Slope(DD)	1726.82	Slope(DD)
Curve(DDS)	-82.847	Curve(DDS)	Curve(DDS)	30.672	Curve(DDS)	Curve(DDS)	-51.728	Curve(DDS)
Slab		Heated Basement	Slab		Heated Basement	Slab		Heated Basement
R-0	-8.63	R-0	R-0	-6.03	R-0	R-0	-2.13	R-0
R-5	-9.86	R-5	R-5	-7.91	R-5	R-5	-2.11	R-5
R-10	-10.16	R-10	R-10	-8.42	R-10	R-10	-2.09	R-10
R-15	-10.06	R-15	R-15	-8.33	R-15	R-15	-2.10	R-15
R-20	-10.47	R-20	R-20	-9.03	R-20	R-20	-2.05	R-20
Intercept	-18.236	Intercept	Intercept	.000	Intercept	Intercept	-13.604	Intercept
Slope(DD)	5333.59	Slope(DD)	Slope(DD)	3516.87	Slope(DD)	Slope(DD)	-1117.87	Slope(DD)
Curve(DDS)	8.264	Curve(DDS)	Curve(DDS)	-19.243	Curve(DDS)	Curve(DDS)	56.647	Curve(DDS)
Unheated Basement		Crawl	Unheated Basement		Crawl	Unheated Basement		Crawl
R-0	-6.03	R-0	R-0	.00	R-0	R-0	-1.19	R-0
R-11	-9.43	R-11	R-11	-9.09	R-11	R-11	-1.24	R-11
R-19	-10.53	R-19	R-19	-10.60	R-19	R-19	-1.49	R-19
R-30	-11.24	R-30	R-30	-11.49	R-30	R-30	-1.64	R-30
Intercept	-4.463	Intercept	Intercept	-12.27	Intercept	Intercept	2.058	Intercept
Slope(DD)	4463.84	Slope(DD)	Slope(DD)	-5.252	Slope(DD)	Slope(DD)	-562.26	Slope(DD)
Curve(DDS)	-416.520	Curve(DDS)	Curve(DDS)	-35.743	Curve(DDS)	Curve(DDS)	43.133	Curve(DDS)
Infiltration		Window U-value	Infiltration		Window U-value	Infiltration		Window U-value
ELF Ach		1-Pane	ELF Ach		1-Pane	ELF Ach		1-Pane
.0007(.78)	.00	2-Pane	.0007(.52)	.00	2-Pane	.0007(.52)	.00	2-Pane
.0005(.57)	-5.13	3-Pane	.0005(.37)	-17	3-Pane	.0005(.37)	-17	3-Pane
.0003(.34)	-9.67	R-10	.0003(.22)	-.31	R-10	.0003(.22)	-.31	R-10
Slope/.001ELF	13.999	Slope(DD)	Slope/.001ELF	3893.91	Slope(DD)	Slope/.001ELF	.333	Slope(DD)
Curve/.001ELF	6.146	Curve(DDS)	Curve/.001ELF	20.647	Curve(DDS)	Curve/.001ELF	.313	Curve(DDS)
Base Load = 69.57 MBtu			Base Load = 16.66 MBtu			Base Load = 16.66 MBtu		
Typical Load = 18.68 MBtu			Typical Load = 8.92 MBtu			Typical Load = 8.92 MBtu		
Residual Load = 5.54 MBtu			Residual Load = 2.39 MBtu			Residual Load = 2.39 MBtu		

Salt Lake City U WYEC			M Apartment Prototype Siding			Series Two		
Heating Load			Cooling Load					
Delta Component (MBtu)			Delta Component (MBtu)			Delta Component (MBtu)		
Ceiling (/sf)			Ceiling (/sf)			Ceiling (/sf)		
R-0	.00	32.12	R-0	.00	28.97	R-0	.00	8.58
R-7	-11.94	12.23	R-7	-4.99	13.22	R-7	-3.08	3.44
R-11	-13.84	9.05	R-11	-5.71	10.98	R-11	-3.57	2.62
R-19	-15.56	6.20	R-13	-6.50	8.48	R-19	-4.02	1.88
R-22	-16.14	5.22	R-19	-6.89	7.24	R-22	-4.19	1.60
R-30	-16.92	3.92	R-27	-7.53	5.21	R-30	-4.42	1.21
R-38	-17.40	3.13	R-34	-7.93	3.96	R-38	-4.56	.98
R-49	-17.78	2.49				R-49	-4.68	.77
R-60	-18.03	2.08				R-60	-4.77	.63
Slope(DD) 5637.50			Slope(DD) 5009.67			Slope(DD) 1765.28		
Curve(DDS) -37.038			Curve(DDS) 70.160			Curve(DDS) -53.788		
Slab (/ft)			Slab (/ft)			Slab (/ft)		
R-0	-9.60	67.86	R-0	-7.51	137.53	R-0	-1.53	-10.05
R-5	-10.60	34.53	R-5	-9.26	79.53	R-5	-1.51	-9.38
R-5	-10.88	25.36	R-5	-9.74	63.53	R-5	-1.49	-8.71
R-10	-10.78	28.70	R-10	-9.65	66.36	R-10	-1.51	-9.21
R-10	-11.14	16.53	R-10	-10.29	45.20	R-10	-1.48	-8.38
Intercept	-7.683		Intercept	.000		Intercept	-6.402	
Slope(DD)	6865.95		Slope(DD)	4260.38		Slope(DD)	-638.83	
Curve(DDS)	-47.808		Curve(DDS)	-22.237		Curve(DDS)	27.891	
Unheated Basement (/sf)			Unheated Basement (/sf)			Unheated Basement (/sf)		
R-0	-7.51	6.88	R-0	.00	19.40	R-0	-1.01	.36
R-11	-10.34	2.18	R-11	-9.50	3.57	R-11	-.58	1.08
R-19	-11.32	.53	R-19	-11.07	.94	R-19	-.45	1.30
R-30	-11.96	-.53	R-30	-12.01	-.61	R-30	-.37	1.44
Intercept	-3.487		R-38	-12.22	-.97			
Slope(DD)	4070.57		R-49	-12.83	-1.99	Intercept	1.822	
Curve(DDS)	-399.686		Intercept	-4.410		Slope(DD)	-523.14	
Infiltration (/sf flr)			Slope(DD)	4841.61		Curve(DDS)	46.580	
ELF Ach	.00	12.61	Curve(DDS)	-38.610				
.0007(.78)	-.513	8.33	Window U-value			Infiltration (/sf flr)		
.0005(.57)	-9.62	4.59	1-Pane	.00	116.04	ELF Ach	.0007(.52)	.45
.0003(.34)			2-Pane	-10.01	46.52	.0005(.37)	-.21	.27
			3-Pane	-12.52	29.11	.0003(.22)	-.38	.14
			R-10	-15.46	8.64			
Slope/.001ELF	13.270		Slope(DD)	3603.12		Slope/.001ELF	.312	
Curve/.001ELF	6.771		Curve(DDS)	30.008		Curve/.001ELF	.469	
Base Load = 65.45 MBtu			Base Load = 14.57 MBtu			Base Load = 14.57 MBtu		
Typical Load = 16.76 MBtu			Typical Load = 7.40 MBtu			Typical Load = 7.40 MBtu		
Residual Load = 5.78 MBtu			Residual Load = .93 MBtu			Residual Load = .93 MBtu		

San Antonio TX WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.86	R-7	-5.36	R-7	-9.66	R-7	-3.16
R-11	-11.44	R-11	-6.12	R-11	-11.20	R-11	-3.61
R-19	-12.85	R-13	-6.98	R-19	-12.59	R-13	-4.10
R-22	-13.35	R-19	-7.40	R-22	-13.09	R-19	-4.35
R-30	-14.03	R-27	-8.02	R-30	-13.76	R-27	-4.89
R-38	-14.44	R-34	-8.40	R-38	-14.16	R-34	-5.22
R-49	-14.77			R-49	-14.48		
R-60	-14.98			R-60	-14.69		
Slope(DD)	1915.69	Slope(DD)	1390.55	Slope(DD)	1892.20	Slope(DD)	1130.28
Curve(DDS)	-26.286	Curve(DDS)	38.791	Curve(DDS)	-27.914	Curve(DDS)	-20.404

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.86	R-7	-5.36	R-7	-9.66	R-7	-3.16
R-11	-11.44	R-11	-6.12	R-11	-11.20	R-11	-3.61
R-19	-12.85	R-13	-6.98	R-19	-12.59	R-13	-4.10
R-22	-13.35	R-19	-7.40	R-22	-13.09	R-19	-4.35
R-30	-14.03	R-27	-8.02	R-30	-13.76	R-27	-4.89
R-38	-14.44	R-34	-8.40	R-38	-14.16	R-34	-5.22
R-49	-14.77			R-49	-14.48		
R-60	-14.98			R-60	-14.69		
Slope(DD)	1915.69	Slope(DD)	1390.55	Slope(DD)	1892.20	Slope(DD)	1130.28
Curve(DDS)	-26.286	Curve(DDS)	38.791	Curve(DDS)	-27.914	Curve(DDS)	-20.404

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.86	R-7	-5.36	R-7	-9.66	R-7	-3.16
R-11	-11.44	R-11	-6.12	R-11	-11.20	R-11	-3.61
R-19	-12.85	R-13	-6.98	R-19	-12.59	R-13	-4.10
R-22	-13.35	R-19	-7.40	R-22	-13.09	R-19	-4.35
R-30	-14.03	R-27	-8.02	R-30	-13.76	R-27	-4.89
R-38	-14.44	R-34	-8.40	R-38	-14.16	R-34	-5.22
R-49	-14.77			R-49	-14.48		
R-60	-14.98			R-60	-14.69		
Slope(DD)	1915.69	Slope(DD)	1390.55	Slope(DD)	1892.20	Slope(DD)	1130.28
Curve(DDS)	-26.286	Curve(DDS)	38.791	Curve(DDS)	-27.914	Curve(DDS)	-20.404

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.86	R-7	-5.36	R-7	-9.66	R-7	-3.16
R-11	-11.44	R-11	-6.12	R-11	-11.20	R-11	-3.61
R-19	-12.85	R-13	-6.98	R-19	-12.59	R-13	-4.10
R-22	-13.35	R-19	-7.40	R-22	-13.09	R-19	-4.35
R-30	-14.03	R-27	-8.02	R-30	-13.76	R-27	-4.89
R-38	-14.44	R-34	-8.40	R-38	-14.16	R-34	-5.22
R-49	-14.77			R-49	-14.48		
R-60	-14.98			R-60	-14.69		
Slope(DD)	1915.69	Slope(DD)	1390.55	Slope(DD)	1892.20	Slope(DD)	1130.28
Curve(DDS)	-26.286	Curve(DDS)	38.791	Curve(DDS)	-27.914	Curve(DDS)	-20.404

Base Load = 57.62 MBtu
Typical Load = 31.37 MBtu
Residual Load = 6.83 MBtu

San Antonio TX WYEC			Mid Town Prototype Siding			Series Two		
Heating Load			Cooling Load					
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling			Wall		
R-0	.00	10.60	R-0	.00	10.18	R-0	.00	.00
R-7	-4.05	3.84	R-7	-2.21	3.30	R-7	-3.80	3.84
R-11	-4.70	2.77	R-11	-2.52	2.64	R-11	-4.41	2.83
R-19	-5.28	1.80	R-13	-2.84	1.97	R-19	-4.95	1.93
R-22	-5.45	1.51	R-19	-3.00	1.64	R-22	-5.12	1.63
R-30	-5.69	1.12	R-27	-3.22	1.18	R-30	-5.36	1.24
R-38	-5.83	.88	R-34	-3.35	.90	R-38	-5.50	1.01
R-49	-5.93	.71				R-49	-5.64	.78
R-60	-6.00	.60				R-60	-5.73	.63
Slope(DD)	1582.78		Slope(DD)	1073.79		Slope(DD)	1754.91	
Curve(DDS)	34.543		Curve(DDS)	74.554		Curve(DDS)	-6.526	
Slab			Heated Basement			Slab		
R-0	-3.27	11.36	R-0	-2.58	28.61	R-0	-2.96	.30
R-5 2ft	-3.53	4.86	R-5 4ft	-3.16	14.11	R-5 2ft	-3.08	-2.20
R-5 4ft	-3.59	3.36	R-5 8ft	-3.26	11.61	R-5 4ft	-3.07	-2.45
R-10 2ft	-3.57	3.86	R-10 4ft	-3.26	11.61	R-10 2ft	-3.07	-2.45
R-10 4ft	-3.63	2.36	R-10 8ft	-3.38	8.61	R-10 4ft	-3.05	-1.95
Intercept	.000		Intercept	3.263		Intercept	.000	
Slope(DD)	553.25		Slope(DD)	451.89		Slope(DD)	-880.27	
Curve(DDS)	42.184		Curve(DDS)	4.919		Curve(DDS)	81.821	
Unheated Basement			Crawl			Unheated Basement		
R-0	-2.58	1.91	R-0	.00	6.21	R-0	-1.03	3.24
R-11 flr	-3.20	.87	R-11 flr	-2.59	1.89	R-11 flr	-.72	3.75
R-19 flr	-3.37	.59	R-19 flr	-2.95	1.29	R-19 flr	-.71	3.77
R-30 flr	-3.48	.41	R-30 flr	-3.14	.98	R-30 flr	-.70	3.79
Intercept	-.082		R-38 flr	-3.18	.91	R-38 flr		
Slope(DD)	665.00		R-49 flr	-3.30	.70	R-49 flr		
Curve(DDS)	-54.013		Intercept		.223	Intercept	3.783	
Infiltration			Slope(DD)	912.54		Slope(DD)	24.62	
ELF Ach			Curve(DDS)	49.649		Curve(DDS)	-25.582	
.0007(.68)	.00	2.95	Window U-value			Infiltration		
.0005(.48)	-1.51	1.69	1-Pane	.00	27.22	ELF Ach		
.0003(.29)	-2.62	.76	2-Pane	-2.63	8.95	.0007(.57)	.00	4.64
Slope/.001ELF	1.291		3-Pane	-3.13	5.47	.0005(.41)	-1.38	3.49
Curve/.001ELF	4.167		R-10	-3.72	1.38	.0003(.25)	-2.93	2.20
			Slope(DD)	544.64		Slope/.001ELF	7.875	
			Curve(DDS)	18.420		Curve/.001ELF	-1.771	
						Slope(DD)	-801.36	
						Curve(DDS)	24.356	
			Base Load =	19.89 MBtu				
			Typical Load =	7.05 MBtu				
			Residual Load =	1.86 MBtu				
			Base Load =	37.96 MBtu				
			Typical Load =	27.04 MBtu				
			Residual Load =	12.42 MBtu				

San Antonio TX WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-4.18	R-7	-1.48	R-7	-3.99	R-7	-.88
R-11	-4.85	R-11	-1.70	R-11	-4.62	R-11	-1.01
R-19	-5.45	R-13	-1.89	R-19	-5.19	R-13	-1.13
R-22	-5.62	R-19	-1.99	R-22	-5.37	R-19	-1.19
R-30	-5.85	R-27	-2.11	R-30	-5.60	R-27	-1.32
R-38	-5.99	R-34	-2.19	R-38	-5.74	R-34	-1.39
R-49	-6.09			R-49	-5.86		
R-60	-6.16			R-60	-5.94		
Slope(DD)	1540.20	Slope(DD)	847.67	Slope(DD)	1657.77	Slope(DD)	866.42
Curve(DDS)	48.715	Curve(DDS)	106.839	Curve(DDS)	19.462	Curve(DDS)	13.678
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-3.45	R-0	-2.99	R-0	-2.40	R-0	-.85
R-5 2ft	-3.65	R-5 4ft	-3.48	R-5 2ft	-2.45	R-5 4ft	-.98
R-5 4ft	-3.69	R-5 8ft	-3.54	R-5 4ft	-2.46	R-5 8ft	-1.02
R-10 2ft	-3.68	R-10 4ft	-3.54	R-10 2ft	-2.46	R-10 4ft	-1.02
R-10 4ft	-3.72	R-10 8ft	-3.61	R-10 4ft	-2.43	R-10 8ft	-1.06
Intercept	.000	Intercept	2.190	Intercept	.000	Intercept	40.516
Slope(DD)	236.06	Slope(DD)	142.08	Slope(DD)	-1159.65	Slope(DD)	255.00
Curve(DDS)	62.312	Curve(DDS)	11.585	Curve(DDS)	91.766	Curve(DDS)	-.273
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-2.99	R-0	.00	R-0	-.85	R-0	.00
R-11 flr	-3.47	R-11 flr	-2.76	R-11 flr	-.55	R-11 flr	.09
R-19 flr	-3.59	R-19 flr	-3.11	R-19 flr	-.52	R-19 flr	-.04
R-30 flr	-3.66	R-30 flr	-3.28	R-30 flr	-.51	R-30 flr	-.08
Intercept	-.139	Intercept	.55	Intercept	3.122	R-38 flr	-.09
Slope(DD)	420.27	Slope(DD)	.118	Slope(DD)	-53.85	R-49 flr	-.11
Curve(DDS)	-27.890	Curve(DDS)	802.39	Curve(DDS)	-12.984	Intercept	3.443
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.68)	2.63	2-Pane	-2.57	.0007(.58)	4.83	2-Pane	-.39
.0005(.49)	1.41	3-Pane	-3.02	.0005(.41)	3.68	3-Pane	-1.18
.0003(.29)	-2.48	R-10	-3.55	.0003(.26)	2.32	R-10	-.07
Slope/.001ELF	.479	Slope(DD)	432.50	Slope/.001ELF	8.354	Slope(DD)	-653.22
Curve/.001ELF	4.688	Curve(DDS)	20.613	Curve/.001ELF	-2.083	Curve(DDS)	21.966
Base Load = 18.57 MBtu		Base Load = 35.85 MBtu		Base Load = 35.85 MBtu		Base Load = 35.85 MBtu	
Typical Load = 6.31 MBtu		Typical Load = 25.79 MBtu		Typical Load = 25.79 MBtu		Typical Load = 25.79 MBtu	
Residual Load = 2.29 MBtu		Residual Load = 11.08 MBtu		Residual Load = 11.08 MBtu		Residual Load = 11.08 MBtu	

San Diego CA TMY One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-11	-9.83	R-7	-4.92	R-7	-3.26	R-7	-5.7
R-19	-11.40	R-11	-5.62	R-11	-3.78	R-11	-6.5
R-22	-12.81	R-13	-6.29	R-19	-4.25	R-13	-8.4
R-30	-13.27	R-19	-6.62	R-22	-4.44	R-19	-9.4
R-38	-13.89	R-27	-7.02	R-30	-4.70	R-27	-1.07
R-49	-14.52	R-34	-7.26	R-38	-4.85	R-34	-1.15
R-60	-14.68			R-49	-4.95		
				R-60	-5.01		
Slope(DD)	1640.61	Slope(DD)	784.20	Slope(DD)	704.73	Slope(DD)	417.48
Curve(DDS)	12.217	Curve(DDS)	101.668	Curve(DDS)	-18.678	Curve(DDS)	-31.242
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-4.43	R-0	-3.26	R-0	-1.23	R-0	-7.79
R-5	-5.70	R-5	-4.89	R-5	-1.04	R-5	-7.75
R-10	-5.84	R-10	-5.15	R-10	-1.00	R-10	-7.72
R-15	-6.05	R-15	-5.49	R-15	-0.68	R-15	-7.74
Intercept	.000	Intercept	1.209	Intercept	.000	Intercept	-2.813
Slope(DD)	175.72	Slope(DD)	291.82	Slope(DD)	-1646.80	Slope(DD)	-148.41
Curve(DDS)	73.662	Curve(DDS)	3.320	Curve(DDS)	86.671	Curve(DDS)	2.330
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-3.26	R-0	.00	R-0	-7.79	R-0	.00
R-11	-6.06	R-11	-6.63	R-11	.31	R-11	.80
R-19	-6.58	R-19	-7.24	R-19	.69	R-19	.84
R-30	-6.91	R-30	-7.53	R-30	.93	R-30	.99
Intercept	-.948	Intercept	-1.186	Intercept	1.021	Intercept	1.02
Slope(DD)	689.48	Slope(DD)	346.65	Slope(DD)	-602.56	Slope(DD)	1.12
Curve(DDS)	-24.265	Curve(DDS)	132.124	Curve(DDS)	58.377	Curve(DDS)	-152.67
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.56)	.00	1-Pane	.00	.0007(.56)	.00	1-Pane	.00
.0005(.41)	-1.59	2-Pane	-2.89	.0005(.35)	.13	2-Pane	.40
.0003(.25)	-2.44	3-Pane	-3.36	.0003(.21)	.35	3-Pane	.58
		R-10	-3.91			R-10	.74
Slope/.001ELF	-2.046	Slope(DD)	304.11	Slope/.001ELF	-1.299	Slope(DD)	-223.56
Curve/.001ELF	6.007	Curve(DDS)	20.023	Curve/.001ELF	.731	Curve(DDS)	1.984
Base Load =	35.58 MBtu	Base Load =	8.46 MBtu	Base Load =	8.46 MBtu	Base Load =	8.46 MBtu
Typical Load =	9.86 MBtu	Typical Load =	2.65 MBtu	Typical Load =	2.65 MBtu	Typical Load =	2.65 MBtu
Residual Load =	4.96 MBtu	Residual Load =	.56 MBtu	Residual Load =	.56 MBtu	Residual Load =	.56 MBtu

Cooling Load

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Heating Load

	Ceiling		Delta Component (MBtu)		Wall		Delta Component (MBtu)	
		(/sf)		(/sf)		(/sf)		(/sf)
R-0		.00	R-0	5.64		.00	R-0	5.64
R-7	-3.75	3.18	R-7	2.08		-1.70	R-7	2.08
R-11	-4.34	2.19	R-11	1.57		-1.94	R-11	1.57
R-19	-4.88	1.29	R-13	1.15		-2.14	R-13	1.15
R-22	-5.01	1.08	R-19	.94		-2.24	R-19	.94
R-30	-5.18	.79	R-27	.65		-2.38	R-27	.65
R-38	-5.28	.62	R-34	.48		-2.46	R-34	.48
R-49	-5.36	.49						
R-60	-5.41	.41						

Heated Basement

R-0	-1.78	8.47	R-0	-1.31	20.22	R-0	-.38	-22.33	R-0	-.16	-16.83
R-5	-1.98	3.47	R-5	-1.66	11.47	R-5	-.30	-20.33	R-5	-.09	-15.08
R-5	-2.01	2.72	R-5	-1.72	9.97	R-5	-.30	-20.33	R-5	-.07	-14.58
R-10	-2.00	2.97	R-10	-1.71	10.22	R-10	-.28	-19.83	R-10	-.07	-14.58
R-10	-2.05	1.72	R-10	-1.80	7.97	R-10	-.04	-13.83	R-10	-.03	-13.58
Intercept	.000		Intercept	4.246		Intercept	.000		Intercept	-11.293	
Slope(DD)	482.92		Slope(DD)	347.18		Slope(DD)	-5666.74		Slope(DD)	-251.81	
Curve(DD)	25.123		Curve(DD)	1.353		Curve(DD)	329.714		Curve(DD)	2.831	

Crawl

R-0	-1.31	1.35	R-0	.00	3.53	R-0		-16	-1.12	R-0		.00	-86	
R-11	-1.88	.40	R-11	f1r	-1.83	.48	R-11	f1r	.27	-41	R-11	f1r	.37	-24
R-19	-2.02	.16	R-19	f1r	-2.03	.15	R-19	f1r	.34	-29	R-19	f1r	.34	-29
R-30	-2.11	.01	R-30	f1r	-2.14	-.03	R-30	f1r	.38	-22	R-30	f1r	.71	.34
			R-38	f1r	-2.16	-.07	R-38	f1r			R-38	f1r	.80	.48
			R-49	f1r	-2.23	-.19	R-49	f1r			R-49	f1r	1.05	.89
			Intercept			-.399	Intercept				Intercept		1.034	
Slope (DD)	529.79		Slope (DD)		412.65		Slope (DD)		-210.66		Slope (DD)		-1082.62	
Curve (DDS)	-37.644		Curve (DDS)		69.005		Curve (DDS)		.565		Curve (DDS)		139.408	

Infiltration (/sf flr) Window U-value (/sf)

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Slope/.001ELF	- .292	Slope(DD)	285.25	Slope/.001ELF	-5.250	Slope(DD)	-1438.83
Curve/.001ELF	2.917	Curve(DDS)	11.171	Curve/.001ELF	3.542	Curve(DDS)	29.252

Base Load	=	6.23 MBtu
Typical Load	=	4.10 MBtu
Residual Load	=	6.86 MBtu

San Diego CA	TMY	MApartment Prototype Siding	Series Two	Cooling Load					
				Heating Load		Cooling Load			
				Delta Component (KBtu)		Delta Component (KBtu)			
				Delta Component (MBtu)		Delta Component (MBtu)			
				Ceiling (/sf)		Wall (/sf)			
R-0	.00	9.35	.00	R-0	.00	3.86	R-0	.00	
R-7	-3.77	3.06	-1.09	R-7	-1.29	1.72	R-7	.19	
R-11	-4.37	2.06	-1.24	R-11	-1.49	1.38	R-11	.22	
R-19	-4.91	1.16	-1.34	R-19	-1.67	1.07	R-13	.25	
R-22	-5.03	.98	-1.39	R-22	-1.78	.89	R-19	.27	
R-30	-5.19	.70	-1.46	R-30	-1.93	.65	R-27	.25	
R-38	-5.28	.55	-1.51	R-38	-2.01	.60	R-34	.25	
R-49	-5.35	.43		R-49	-2.05	.44		.00	
R-60	-5.39	.36		R-60	-2.07	.40		.00	
				Slope(DD)		1021.83	Slope(DD)		-56.11
				Curve(DDS)		-62.506	Curve(DDS)		37.311
				Slab			Heated Basement		
R-0	-2.09	6.28	-1.85	R-0	-1.16	23.95	R-0	-1.16	23.79
R-5 2ft	-2.20	2.78	-2.08	R-5 2ft	-1.05	20.12	R-5 4ft	-1.09	21.45
R-5 4ft	-2.22	2.11	-2.13	R-5 4ft	-1.01	18.62	R-5 8ft	-1.09	21.45
R-10 2ft	-2.21	2.44	-2.12	R-10 2ft	-1.04	19.79	R-10 4ft	-1.09	21.62
R-10 4ft	-2.24	1.44	-2.17	R-10 4ft	.15	-13.45	R-10 8ft	-1.04	19.95
Intercept	.000		Intercept	.000			Intercept	-17.570	
Slope(DD)	427.00		Slope(DD)	-5330.08			Slope(DD)	-283.15	
Curve(DDS)	12.433		Curve(DDS)	286.100			Curve(DDS)	3.203	
				Unheated Basement (/sf)			Crawl		
R-0	-1.85	.72	.00	R-0	-1.16	-1.19	R-0	.00	.92
R-11 flr	-2.22	.11	-2.03	R-11 flr	.28	-4.46	R-11 flr	.42	.21
R-19 flr	-2.30	-.04	-2.18	R-19 flr	.41	-2.23	R-19 flr	.47	.14
R-30 flr	-2.36	-.13	-2.26	R-30 flr	.51	-.08	R-30 flr	.54	.03
							R-38 flr	.55	.01
							R-49 flr	.59	.07
Intercept	-.364		Intercept	.332			Intercept	.140	
Slope(DD)	316.21		Slope(DD)	-566.42			Slope(DD)	-228.09	
Curve(DDS)	-20.358		Curve(DDS)	52.600			Curve(DDS)	4.084	
				Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			ELF Ach				1-Pane	.00	-13.42
.0007(.58)	.87		.0007(.58)	.00			2-Pane	.40	-10.65
.0005(.42)	-.75		.0005(.35)	.19			3-Pane	.92	-7.01
.0003(.25)	-1.14		.0003(.21)	.45			R-10	1.54	-2.73
				Slope/.001ELF		-1.667	Slope(DD)		-1223.94
				Curve/.001ELF		.729	Curve(DDS)		27.102
				Base Load =		4.68 MBtu			
				Typical Load =		2.92 MBtu			
				Residual Load =		3.69 MBtu			

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-18.58	R-7	-10.87	R-7	-.72	R-7	-.16
R-11	-21.55	R-11	-12.42	R-11	-.84	R-11	-.18
R-19	-24.21	R-13	-14.33	R-19	-.94	R-13	-.22
R-22	-25.28	R-22	-16.27	R-22	-.97	R-19	-.24
R-30	-26.72	R-27	-16.75	R-30	-1.01	R-27	-.26
R-38	-27.59	R-34	-17.66	R-38	-1.04	R-34	-.28
R-49	-28.33			R-49	-1.06		
R-60	-28.80			R-60	-1.08		

Slope(DD)	4242.92	Slope(DD)	3484.77	Slope(DD)	121.18	Slope(DD)	74.86
Curve(DDS)	-139.693	Curve(DDS)	-9.887	Curve(DDS)	.753	Curve(DDS)	-3.270
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-9.92	R-0	-7.20	R-0	-.38	R-0	-.31
R-5	-13.59	R-5	-10.60	R-5	-.30	R-5	-.28
R-10	-14.53	R-5	-11.81	R-5	-.27	R-5	-.28
R-15	-14.22	R-10	-11.47	R-10	-.28	R-10	-.27
R-20	-15.37	R-15	-13.13	R-15	-.26	R-15	-.22
Intercept	.000	Intercept	5.162	Intercept	.000	Intercept	.044
Slope(DD)	5032.69	Slope(DD)	2514.90	Slope(DD)	-.98.23	Slope(DD)	-30.75
Curve(DDS)	-40.624	Curve(DDS)	-26.646	Curve(DDS)	-.281	Curve(DDS)	.376

Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-7.20	R-0	.00	R-0	-.31	R-0	.14
R-11	-16.87	R-11	-19.17	R-11	-.10	R-11	.15
R-19	-19.25	R-19	-21.72	R-19	-.05	R-19	.15
R-30	-20.78	R-30	-22.78	R-30	-.02	R-30	.16
Intercept	-4.703	Intercept	-23.02	Intercept	.178	Intercept	.16
Slope(DD)	3511.05	Slope(DD)	-5.210	Slope(DD)	-70.55	Slope(DD)	.240
Curve(DDS)	-250.182	Curve(DDS)	2085.61	Curve(DDS)	4.594	Curve(DDS)	4.36

Infiltation	(/sf flr)	Window U-value	(/sf)	Infiltation	(/sf flr)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.73)	.00	.0007(.93)	.00	.0007(.93)	.05	1-Pane	.32
.0005(.51)	-5.49	.0005(.87)	-.01	.0005(.87)	.04	2-Pane	.38
.0003(.31)	-10.01	.0003(.40)	-.03	.0003(.40)	.03	3-Pane	.25
Slope/.001ELF	8.376	Slope/.001ELF	2289.33	Slope/.001ELF	.130	R-10	.10
Curve/.001ELF	7.874	Curve(DDS)	26.891	Curve/.001ELF	-.091	Slope(DD)	47.80

Base Load = 91.77 MBtu
 Typical Load = 36.06 MBtu
 Residual Load = 9.18 MBtu

Base Load = 1.95 MBtu
 Typical Load = .52 MBtu
 Residual Load = -.38 MBtu

Cooling Load

Slope(DD)	74.86	Slope(DD)	74.86	Slope(DD)	74.86	Slope(DD)	74.86
Curve(DDS)	-3.270	Curve(DDS)	-3.270	Curve(DDS)	-3.270	Curve(DDS)	-3.270
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-.38	R-0	-1.00	R-0	-.31	R-0	-.58
R-5	-.30	R-5	-.52	R-5	-.28	R-5	-.40
R-10	-.27	R-10	-.40	R-10	-.27	R-10	-.28
R-15	-.26	R-15	-.28	R-15	-.25	R-15	-.22
Intercept	.000	Intercept	.000	Intercept	.044	Intercept	.044
Slope(DD)	-.98.23	Slope(DD)	-.98.23	Slope(DD)	-.98.23	Slope(DD)	-.98.23
Curve(DDS)	-.281	Curve(DDS)	-.281	Curve(DDS)	-.281	Curve(DDS)	-.281

Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.31	R-0	.14	R-0	.14	R-0	.14
R-11	-.10	R-11	.15	R-11	.15	R-11	.15
R-19	-.05	R-19	.15	R-19	.15	R-19	.15
R-30	-.02	R-30	.16	R-30	.16	R-30	.16
Intercept	.178	Intercept	.17	Intercept	.17	Intercept	.17
Slope(DD)	-70.55	Slope(DD)	.240	Slope(DD)	.240	Slope(DD)	.240
Curve(DDS)	4.594	Curve(DDS)	4.36	Curve(DDS)	4.36	Curve(DDS)	4.36

Infiltation	(/sf flr)	Window U-value	(/sf)	Infiltation	(/sf flr)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.93)	.05	.0007(.93)	.05	.0007(.93)	.05	1-Pane	.32
.0005(.87)	.04	.0005(.87)	.04	.0005(.87)	.04	2-Pane	.38
.0003(.40)	.03	.0003(.40)	.03	.0003(.40)	.03	3-Pane	.25
Slope/.001ELF	.130	Slope/.001ELF	.130	Slope/.001ELF	.130	R-10	.10
Curve/.001ELF	-.091	Curve(DDS)	-.091	Curve/.001ELF	-.091	Slope(DD)	47.80

Base Load = 1.95 MBtu
 Typical Load = .52 MBtu
 Residual Load = -.38 MBtu

San Francisco CA TMY Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-8.30	R-7	-4.63	R-7	-.34	R-7	-.09
R-11	-9.63	R-11	-5.29	R-11	-.39	R-11	-.10
R-19	-10.82	R-13	-5.93	R-19	-.44	R-13	-.13
R-22	-11.18	R-19	-6.25	R-22	-.47	R-19	-.14
R-30	-11.66	R-27	-6.67	R-30	-.50	R-27	-.15
R-38	-11.95	R-34	-6.93	R-38	-.52	R-34	-.15
R-49	-12.16			R-49	-.54		
R-60	-12.30			R-60	-.55		
Slope(DD)	3256.26	Slope(DD)	1995.57	Slope(DD)	273.47	Slope(DD)	79.94
Curve(DDS)	68.970	Curve(DDS)	190.880	Curve(DDS)	-17.258	Curve(DDS)	-1.546
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-5.12	R-0	-3.99	R-0	-.15	R-0	-.12
R-5 2ft	-5.83	R-5 4ft	-5.02	R-5 2ft	-.13	R-5 4ft	-.11
R-5 4ft	-5.97	R-5 8ft	-5.25	R-5 4ft	-.12	R-5 8ft	-.10
R-10 2ft	-5.92	R-10 4ft	-5.20	R-10 2ft	-.12	R-10 4ft	-.10
R-10 4ft	-6.08	R-10 8ft	-5.47	R-10 4ft	-.11	R-10 8ft	-.09
Intercept	.000	Intercept	8.548	Intercept	.000	Intercept	.551
Slope(DD)	1963.08	Slope(DD)	1340.77	Slope(DD)	-318.17	Slope(DD)	-97.21
Curve(DDS)	106.363	Curve(DDS)	-1.082	Curve(DDS)	14.179	Curve(DDS)	1.474
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-3.99	R-0	.00	R-0	-.12	R-0	.00
R-11 flr	-5.99	R-11 flr	-6.16	R-11 flr	-.03	R-11 flr	.05
R-19 flr	-6.54	R-19 flr	-6.90	R-19 flr	.01	R-19 flr	.06
R-30 flr	-6.90	R-30 flr	-7.26	R-30 flr	.03	R-30 flr	.07
		R-38 flr	-7.34			R-38 flr	.07
		R-49 flr	-7.58			R-49 flr	.08
Intercept	-2.560	Intercept	-2.946	Intercept	.294	Intercept	.277
Slope(DD)	2165.32	Slope(DD)	1571.64	Slope(DD)	-154.14	Slope(DD)	-40.85
Curve(DDS)	-177.203	Curve(DDS)	206.169	Curve(DDS)	16.323	Curve(DDS)	2.494
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.72)	.00	.0007(.93)	.00	.0007(.93)	.04	.0007(.93)	.00
.0005(.50)	-3.34	.0005(.67)	.01	.0005(.67)	.05	.0005(.67)	.00
.0003(.31)	-5.45	.0003(.40)	.00	.0003(.40)	.04	.0003(.40)	.00
		R-10	-7.59			R-10	.01
Slope/.001ELF	-1.459	Slope(DD)	1033.03	Slope/.001ELF	.208	Slope(DD)	-11.71
Curve/.001ELF	12.813	Curve(DDS)	40.302	Curve/.001ELF	-.208	Curve(DDS)	.307
Base Load = 39.82 MBtu				Base Load = 1.53 MBtu			
Typical Load = 14.54 MBtu				Typical Load = .87 MBtu			
Residual Load = 12.13 MBtu				Residual Load = .29 MBtu			

San Francisco CA TMY MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	1.00	R-0	.00
R-7	-8.49	R-7	-3.14	R-7	-.37	R-7	-.05
R-11	-9.84	R-11	-3.59	R-11	-.43	R-11	-.06
R-13	-11.06	R-13	-3.98	R-13	-.48	R-13	-.07
R-19	-11.37	R-19	-4.17	R-19	-.50	R-19	-.08
R-22	-11.78	R-22	-4.44	R-22	-.52	R-22	-.08
R-30	-12.03	R-30	-4.60	R-30	-.54	R-30	-.09
R-38	-12.21	R-38	-4.72	R-38	-.55	R-38	-.09
R-49	-12.32	R-49	-4.83	R-49	-.56	R-49	-.09
R-60	-12.43	R-60	-4.94	R-60	-.57	R-60	-.09
Slope(DD)	2603.87	Slope(DD)	1677.64	Slope(DD)	185.11	Slope(DD)	57.56
Curve(DDS)	173.453	Curve(DDS)	241.215	Curve(DDS)	-2.723	Curve(DDS)	.184
Heated Basement		Heated Basement		Heated Basement		Heated Basement	
Slab	(/ft)	Slab	(/ft)	Slab	(/ft)	Slab	(/ft)
R-0	-6.03	R-0	-5.37	R-0	-.06	R-0	-.06
R-5	-6.67	R-5	-6.36	R-5	-.04	R-5	-.05
R-10	-6.81	R-10	-6.58	R-10	-.04	R-10	-.04
R-15	-6.93	R-15	-6.70	R-15	-.04	R-15	-.04
R-20	-7.05	R-20	-6.82	R-20	-.04	R-20	-.04
R-25	-7.17	R-25	-6.94	R-25	-.04	R-25	-.04
R-30	-7.29	R-30	-7.06	R-30	-.04	R-30	-.04
R-35	-7.41	R-35	-7.18	R-35	-.04	R-35	-.04
R-40	-7.53	R-40	-7.30	R-40	-.04	R-40	-.04
R-45	-7.65	R-45	-7.42	R-45	-.04	R-45	-.04
R-50	-7.77	R-50	-7.54	R-50	-.04	R-50	-.04
R-55	-7.89	R-55	-7.66	R-55	-.04	R-55	-.04
R-60	-8.01	R-60	-7.78	R-60	-.04	R-60	-.04
Intercept	.000	Intercept	-5.960	Intercept	.000	Intercept	.000
Slope(DD)	3442.99	Slope(DD)	2041.56	Slope(DD)	-77.80	Slope(DD)	-57.46
Curve(DDS)	52.461	Curve(DDS)	-7.240	Curve(DDS)	-8.02	Curve(DDS)	.709
Unheated Basement		Unheated Basement		Unheated Basement		Unheated Basement	
Slab	(/ft)	Slab	(/ft)	Slab	(/ft)	Slab	(/ft)
R-0	-5.37	R-0	-5.37	R-0	-.06	R-0	-.06
R-5	-6.03	R-5	-6.03	R-5	-.04	R-5	-.04
R-10	-6.67	R-10	-6.67	R-10	-.03	R-10	-.03
R-15	-7.05	R-15	-7.05	R-15	-.03	R-15	-.03
R-20	-7.41	R-20	-7.41	R-20	-.03	R-20	-.03
R-25	-7.77	R-25	-7.77	R-25	-.03	R-25	-.03
R-30	-8.13	R-30	-8.13	R-30	-.03	R-30	-.03
R-35	-8.49	R-35	-8.49	R-35	-.03	R-35	-.03
R-40	-8.85	R-40	-8.85	R-40	-.03	R-40	-.03
R-45	-9.21	R-45	-9.21	R-45	-.03	R-45	-.03
R-50	-9.57	R-50	-9.57	R-50	-.03	R-50	-.03
R-55	-9.93	R-55	-9.93	R-55	-.03	R-55	-.03
R-60	-10.29	R-60	-10.29	R-60	-.03	R-60	-.03
Intercept	-2.663	Intercept	-2.482	Intercept	.100	Intercept	.123
Slope(DD)	2035.67	Slope(DD)	1316.96	Slope(DD)	-47.31	Slope(DD)	27.30
Curve(DDS)	-178.651	Curve(DDS)	295.023	Curve(DDS)	3.779	Curve(DDS)	-7.835
Infiltration		Infiltration		Infiltration		Infiltration	
Window U-value	(/sf)	Window U-value	(/sf)	Window U-value	(/sf)	Window U-value	(/sf)
1-Pane	.00	1-Pane	.00	1-Pane	.00	1-Pane	.00
2-Pane	-3.40	2-Pane	-5.40	2-Pane	-.02	2-Pane	-.01
3-Pane	-5.39	3-Pane	-8.28	3-Pane	-.04	3-Pane	-.03
R-10	.28	R-10	-7.29	R-10	.04	R-10	-.02
Slope/.001ELF	-3.500	Slope(DD)	712.03	Slope/.001ELF	.146	Slope(DD)	3.07
Curve/.001ELF	14.740	Curve(DDS)	48.403	Curve/.001ELF	-.052	Curve(DDS)	.044
Base Load = 37.64 MBtu				Base Load = 1.19 MBtu			
Typical Load = 12.92 MBtu				Typical Load = .59 MBtu			
Residual Load = 12.83 MBtu				Residual Load = .02 MBtu			

Seattle WA

WYEC

One Story Prototype Siding

Series Two

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-28.79	R-7	-17.18
R-11	-33.39	R-11	-19.63
R-19	-37.52	R-13	-22.65
R-22	-39.13	R-19	-24.15
R-30	-41.29	R-27	-26.87
R-38	-42.59	R-34	-28.54
R-49	-43.76		
R-60	-44.52		

Slope(DD)	6425.75	Slope(DD)	6232.69
Curve(DDS)	-195.521	Curve(DDS)	-116.143

Slab		Heated Basement	
	(/ft)		(/ft)
R-0	-12.36	R-0	-8.14
R-5 2ft	-18.00	R-5 4ft	-12.34
R-5 4ft	-19.95	R-5 8ft	-14.40
R-10 2ft	-18.98	R-10 4ft	-13.50
R-10 4ft	-21.61	R-10 8ft	-16.64
Intercept	-21.102	Intercept	.000
Slope(DD)	8877.46	Slope(DD)	4020.65
Curve(DDS)	-159.825	Curve(DDS)	-43.749

Unheated Basement		Crawl	
	(/sf)		(/sf)
R-0	-8.14	R-0	.00
R-11 flr	-25.02	R-11 flr	-27.71
R-19 flr	-29.46	R-19 flr	-32.20
R-30 flr	-32.32	R-30 flr	-34.97
		R-38 flr	-35.60
		R-49 flr	-37.42
Intercept	-10.727	Intercept	-11.792
Slope(DD)	6679.29	Slope(DD)	5459.26
Curve(DDS)	-517.766	Curve(DDS)	-38.340

Infiltration		Window U-value	
ELF Ach	(/sf flr)		(/sf)
.0007(.75)	.00	1-Pane	.00
.0005(.54)	-7.69	2-Pane	-13.94
.0003(.33)	-15.22	3-Pane	-18.45
		R-10	-23.75

Slope/.001ELF	23.408	Slope(DD)	5930.02
Curve/.001ELF	1.300	Curve(DDS)	-20.375

Base Load = 153.65 MBtu
 Typical Load = 52.94 MBtu
 Residual Load = 9.21 MBtu

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-1.44	R-7	-1.44
R-11	-1.66	R-11	-1.66
R-19	-1.87	R-13	-2.23
R-22	-1.94	R-19	-2.44
R-30	-2.04	R-27	-2.49
R-38	-2.10	R-34	-2.52
R-49	-2.17		
R-60	-2.21		

Slope(DD)	305.91	Slope(DD)	156.33
Curve(DDS)	-7.766	Curve(DDS)	-8.859

Slab		Heated Basement	
	(/ft)		(/ft)
R-0	-.98	R-0	-.68
R-5 2ft	-.90	R-5 4ft	-.69
R-5 4ft	-.86	R-5 8ft	-.68
R-10 2ft	-.88	R-10 4ft	-.70
R-10 4ft	-.83	R-10 8ft	-.68
Intercept	-.420	Intercept	.000
Slope(DD)	-202.42	Slope(DD)	-24.47
Curve(DDS)	8.051	Curve(DDS)	.522

Unheated Basement		Crawl	
	(/sf)		(/sf)
R-0	-.66	R-0	.00
R-11 flr	-.21	R-11 flr	.22
R-19 flr	-.08	R-19 flr	.21
R-30 flr	-.00	R-30 flr	.21
		R-38 flr	.21
		R-49 flr	.21
Intercept	.563	Intercept	.536
Slope(DD)	-195.91	Slope(DD)	32.27
Curve(DDS)	16.431	Curve(DDS)	-10.746

Infiltration		Window U-value	
ELF Ach	(/sf flr)		(/sf)
.0007(.57)	.00	1-Pane	.00
.0005(.41)	-.03	2-Pane	-.01
.0003(.24)	-.06	3-Pane	-.02
		R-10	-.03

Slope/.001ELF	.097	Slope(DD)	16.09
Curve/.001ELF	.000	Curve(DDS)	-.325

Base Load = 4.18 MBtu
 Typical Load = .91 MBtu
 Residual Load = -.90 MBtu

Seattle WA	WYEC	MApartment Prototype Siding	Series Two	Cooling Load			
				Heating Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	28.80	R-0	.00	R-0	.00
R-7	-11.75	R-7	-4.98	R-7	1.90	R-7	.75
R-11	-13.62	R-11	-5.68	R-11	.66	R-7	.45
R-19	-15.31	R-13	-6.47	R-11	.77	R-11	.10
R-22	-15.87	R-19	-6.86	R-19	.86	R-11	.11
R-30	-16.64	R-27	-7.50	R-22	.95	R-13	.14
R-38	-17.10	R-34	-7.89	R-30	.98	R-19	.18
R-49	-17.47			R-38	.98	R-27	.20
R-60	-17.72			R-49	1.02	R-34	.18
				R-60	1.05		.17
Slope(DD)	5488.24	Slope(DD)	4942.54	Slope(DD)	453.70	Slope(DD)	210.32
Curve(DDS)	-28.114	Curve(DDS)	76.759	Curve(DDS)	-22.374	Curve(DDS)	-13.122
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-8.37	R-0	-7.05	R-0	2.46	R-0	2.46
R-5	-9.48	R-5	-8.55	R-5	2.22	R-5	2.22
R-10	-9.67	R-10	-8.89	R-10	2.20	R-10	2.20
R-15	-9.87	R-15	-9.19	R-15	2.21	R-15	2.21
R-20	-10.14	R-20	-9.57	R-20	2.21	R-20	2.21
R-25	-10.41	R-25	-9.95	R-25	2.21	R-25	2.21
R-30	-10.68	R-30	-10.32	R-30	2.21	R-30	2.21
R-35	-10.95	R-35	-10.69	R-35	2.21	R-35	2.21
R-40	-11.22	R-40	-11.06	R-40	2.21	R-40	2.21
R-45	-11.49	R-45	-11.43	R-45	2.21	R-45	2.21
R-50	-11.76	R-50	-11.80	R-50	2.21	R-50	2.21
R-55	-12.03	R-55	-12.17	R-55	2.21	R-55	2.21
R-60	-12.30	R-60	-12.50	R-60	2.21	R-60	2.21
R-65	-12.57	R-65	-12.87	R-65	2.21	R-65	2.21
R-70	-12.84	R-70	-13.14	R-70	2.21	R-70	2.21
R-75	-13.11	R-75	-13.45	R-75	2.21	R-75	2.21
R-80	-13.38	R-80	-13.78	R-80	2.21	R-80	2.21
R-85	-13.65	R-85	-14.08	R-85	2.21	R-85	2.21
R-90	-13.92	R-90	-14.38	R-90	2.21	R-90	2.21
R-95	-14.19	R-95	-14.68	R-95	2.21	R-95	2.21
R-100	-14.46	R-100	-14.98	R-100	2.21	R-100	2.21
R-105	-14.73	R-105	-15.28	R-105	2.21	R-105	2.21
R-110	-15.00	R-110	-15.58	R-110	2.21	R-110	2.21
R-115	-15.27	R-115	-15.88	R-115	2.21	R-115	2.21
R-120	-15.54	R-120	-16.18	R-120	2.21	R-120	2.21
R-125	-15.81	R-125	-16.48	R-125	2.21	R-125	2.21
R-130	-16.08	R-130	-16.78	R-130	2.21	R-130	2.21
R-135	-16.35	R-135	-17.08	R-135	2.21	R-135	2.21
R-140	-16.62	R-140	-17.38	R-140	2.21	R-140	2.21
R-145	-16.89	R-145	-17.68	R-145	2.21	R-145	2.21
R-150	-17.16	R-150	-17.98	R-150	2.21	R-150	2.21
R-155	-17.43	R-155	-18.28	R-155	2.21	R-155	2.21
R-160	-17.70	R-160	-18.58	R-160	2.21	R-160	2.21
R-165	-17.97	R-165	-18.88	R-165	2.21	R-165	2.21
R-170	-18.24	R-170	-19.18	R-170	2.21	R-170	2.21
R-175	-18.51	R-175	-19.48	R-175	2.21	R-175	2.21
R-180	-18.78	R-180	-19.78	R-180	2.21	R-180	2.21
R-185	-19.05	R-185	-20.08	R-185	2.21	R-185	2.21
R-190	-19.32	R-190	-20.38	R-190	2.21	R-190	2.21
R-195	-19.59	R-195	-20.68	R-195	2.21	R-195	2.21
R-200	-19.86	R-200	-20.98	R-200	2.21	R-200	2.21
R-205	-20.13	R-205	-21.28	R-205	2.21	R-205	2.21
R-210	-20.40	R-210	-21.58	R-210	2.21	R-210	2.21
R-215	-20.67	R-215	-21.88	R-215	2.21	R-215	2.21
R-220	-20.94	R-220	-22.18	R-220	2.21	R-220	2.21
R-225	-21.21	R-225	-22.48	R-225	2.21	R-225	2.21
R-230	-21.48	R-230	-22.78	R-230	2.21	R-230	2.21
R-235	-21.75	R-235	-23.08	R-235	2.21	R-235	2.21
R-240	-22.02	R-240	-23.38	R-240	2.21	R-240	2.21
R-245	-22.29	R-245	-23.68	R-245	2.21	R-245	2.21
R-250	-22.56	R-250	-23.98	R-250	2.21	R-250	2.21
R-255	-22.83	R-255	-24.28	R-255	2.21	R-255	2.21
R-260	-23.10	R-260	-24.58	R-260	2.21	R-260	2.21
R-265	-23.37	R-265	-24.88	R-265	2.21	R-265	2.21
R-270	-23.64	R-270	-25.18	R-270	2.21	R-270	2.21
R-275	-23.91	R-275	-25.48	R-275	2.21	R-275	2.21
R-280	-24.18	R-280	-25.78	R-280	2.21	R-280	2.21
R-285	-24.45	R-285	-26.08	R-285	2.21	R-285	2.21
R-290	-24.72	R-290	-26.38	R-290	2.21	R-290	2.21
R-295	-24.99	R-295	-26.68	R-295	2.21	R-295	2.21
R-300	-25.26	R-300	-26.98	R-300	2.21	R-300	2.21
R-305	-25.53	R-305	-27.28	R-305	2.21	R-305	2.21
R-310	-25.80	R-310	-27.58	R-310	2.21	R-310	2.21
R-315	-26.07	R-315	-27.88	R-315	2.21	R-315	2.21
R-320	-26.34	R-320	-28.18	R-320	2.21	R-320	2.21
R-325	-26.61	R-325	-28.48	R-325	2.21	R-325	2.21
R-330	-26.88	R-330	-28.78	R-330	2.21	R-330	2.21
R-335	-27.15	R-335	-29.08	R-335	2.21	R-335	2.21
R-340	-27.42	R-340	-29.38	R-340	2.21	R-340	2.21
R-345	-27.69	R-345	-29.68	R-345	2.21	R-345	2.21
R-350	-27.96	R-350	-29.98	R-350	2.21	R-350	2.21
R-355	-28.23	R-355	-30.28	R-355	2.21	R-355	2.21
R-360	-28.50	R-360	-30.58	R-360	2.21	R-360	2.21
R-365	-28.77	R-365	-30.88	R-365	2.21	R-365	2.21
R-370	-29.04	R-370	-31.18	R-370	2.21	R-370	2.21
R-375	-29.31	R-375	-31.48	R-375	2.21	R-375	2.21
R-380	-29.58	R-380	-31.78	R-380	2.21	R-380	2.21
R-385	-29.85	R-385	-32.08	R-385	2.21	R-385	2.21
R-390	-30.12	R-390	-32.38	R-390	2.21	R-390	2.21
R-395	-30.39	R-395	-32.68	R-395	2.21	R-395	2.21
R-400	-30.66	R-400	-32.98	R-400	2.21	R-400	2.21
R-405	-30.93	R-405	-33.28	R-405	2.21	R-405	2.21
R-410	-31.20	R-410	-33.58	R-410	2.21	R-410	2.21
R-415	-31.47	R-415	-33.88	R-415	2.21	R-415	2.21
R-420	-31.74	R-420	-34.18	R-420	2.21	R-420	2.21
R-425	-32.01	R-425	-34.48	R-425	2.21	R-425	2.21
R-430	-32.28	R-430	-34.78	R-430	2.21	R-430	2.21
R-435	-32.55	R-435	-35.08	R-435	2.21	R-435	2.21
R-440	-32.82	R-440	-35.38	R-440	2.21	R-440	2.21
R-445	-33.09	R-445	-35.68	R-445	2.21	R-445	2.21
R-450	-33.36	R-450	-35.98	R-450	2.21	R-450	2.21
R-455	-33.63	R-455	-36.28	R-455	2.21	R-455	2.21
R-460	-33.90	R-460	-36.58	R-460	2.21	R-460	2.21
R-465	-34.17	R-465	-36.88	R-465	2.21	R-465	2.21
R-470	-34.44	R-470	-37.18	R-470	2.21	R-470	2.21
R-475	-34.71	R-475	-37.48	R-475	2.21	R-475	2.21
R-480	-34.98	R-480	-37.78	R-480	2.21	R-480	2.21
R-485	-35.25	R-485	-38.08	R-485	2.21	R-485	2.21
R-490	-35.52	R-490	-38.38	R-490	2.21	R-490	2.21
R-495	-35.79	R-495	-38.68	R-495	2.21	R-495	2.21
R-500	-36.06	R-500	-38.98	R-500	2.21	R-500	2.21
R-505	-36.33	R-505	-39.28	R-505	2.21	R-505	2.21
R-510	-36.60	R-510	-39.58	R-510	2.21	R-510	2.21
R-515	-36.87	R-515	-39.88	R-515	2.21	R-515	2.21
R-520	-37.14	R-520	-40.18	R-520	2.21	R-520	2.21
R-525	-37.41	R-525	-40.48	R-525	2.21	R-525	2.21
R-530	-37.68	R-530	-40.78	R-530	2.21	R-530	2.21
R-535	-37.95	R-535	-41.08	R-535	2.21	R-535	2.21
R-540	-38.22	R-540	-41.38	R-540	2.21	R-540	2.21
R-545	-38.49	R-545	-41.68	R-545	2.21	R-545	2.21
R-550	-38.76	R-550	-41.98	R-550	2.21	R-550	2.21
R-555	-39.03	R-555	-42.28	R-555	2.21	R-555	2.21
R-560	-39.30	R-560	-42.58	R-560	2.21	R-560	2.21
R-565	-39.57	R-565	-42.88	R-565	2.21	R-565	2.21
R-570	-39.84	R-570	-43.18	R-570	2.21	R-570	2.21
R-575	-40.11	R-575	-43.48	R-575	2.21	R-575	2.21
R-580	-40.38	R-580	-43.78	R-580	2.21	R-580	2.21
R-585	-40.65	R-585	-44.08	R-585	2.21	R-585	2.21
R-590	-40.92	R-590	-44.38	R-590	2.21	R-590	2.21
R-595	-41.19	R-595	-44.68	R-595	2.21	R-595	2.21
R-600	-41.46	R-600	-44.98	R-600	2.21	R-600	2.21
R-605	-41.73	R-605	-45.28	R-605	2.21	R-605	2.21
R-610	-42.00	R-610	-45.58	R-610	2.21	R-610	2.21
R-615	-42.27	R-615	-45.88	R-615	2.21	R-615	2.21
R-620	-42.54	R-620	-46.18	R-620	2.21	R-620	

Washington DC

WYEC

One Story

Prototype Siding

Series Two

Heating Load

Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	25.63	R-7	R-7	7.04	R-7
R-11	-23.74	R-11	R-11	2.89	R-11
R-19	-27.53	R-13	R-19	2.23	R-13
R-22	-30.93	R-13	R-19	1.63	R-13
R-30	-32.24	R-19	R-22	1.39	R-19
R-38	-33.99	R-27	R-30	1.05	R-27
R-49	-35.05	R-34	R-38	.85	R-34
R-60	-36.58	R-34	R-49	.67	R-34
			R-60	.55	
Slope(DD)	5170.37	Slope(DD)	Slope(DD)	1544.34	Slope(DD)
Curve(DDS)	-143.062	Curve(DDS)	Curve(DDS)	-60.337	Curve(DDS)
Slab		Heated Basement	Slab		Heated Basement
R-0	-16.17	R-0	R-0	-5.92	R-0
R-5	-20.11	R-5	R-5	-7.51	R-5
R-10	-21.23	R-10	R-10	-7.39	R-10
R-15	-20.84	R-15	R-15	-6.90	R-15
R-20	-22.40	R-20	R-20	-5.89	R-20
Intercept	-14.360	Intercept	Intercept	-6.60	Intercept
Slope(DD)	5745.95	Slope(DD)	Slope(DD)	-610.01	Slope(DD)
Curve(DDS)	-80.642	Curve(DDS)	Curve(DDS)	32.284	Curve(DDS)
Unheated Basement	(/sf)	Crawl	Unheated Basement	(/sf)	Crawl
R-0	-9.99	R-0	R-0	-3.30	R-0
R-11	-21.18	R-11	R-11	2.53	R-11
R-19	-24.25	R-19	R-19	2.97	R-19
R-30	-26.22	R-30	R-30	3.25	R-30
Intercept	-5.364	Intercept	Intercept	4.002	Intercept
Slope(DD)	4660.51	Slope(DD)	Slope(DD)	-1020.56	Slope(DD)
Curve(DDS)	-377.503	Curve(DDS)	Curve(DDS)	80.745	Curve(DDS)
Infiltration	(/sf flr)	Window U-value	Infiltration	(/sf flr)	Window U-value
ELF Ach		ELF Ach	ELF Ach		ELF Ach
.0007(.79)	.00	.0007(.48)	.0007(.48)	.00	.00
.0005(.56)	-6.50	.0005(.34)	.0005(.34)	-.75	-.21
.0003(.36)	-12.88	.0003(.20)	.0003(.20)	-1.50	-.27
Slope/.001ELF	19.935	Slope(DD)	Slope/.001ELF	2.435	Slope(DD)
Curve/.001ELF	.974	Curve(DDS)	Curve/.001ELF	.000	Curve(DDS)
Base Load =	124.39 MBtu	Base Load =	Base Load =	27.97 MBtu	
Typical Load =	38.43 MBtu	Typical Load =	Typical Load =	10.70 MBtu	
Residual Load =	1.98 MBtu	Residual Load =	Residual Load =	-2.06 MBtu	

Series Two

Mid Town Prototype Siding

WVEC

Washington DC

Heating Load

Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (KBtu)
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -9.85	R-7 -5.81	R-7 -2.52	R-7 -2.52	R-7 -2.52	R-7 -2.52
R-11 -11.43	R-11 -6.64	R-11 -2.92	R-11 -2.92	R-11 -2.92	R-11 -2.92
R-19 -12.84	R-13 -7.59	R-19 -3.28	R-19 -3.28	R-19 -3.28	R-19 -3.28
R-22 -13.34	R-19 -8.06	R-22 -3.40	R-22 -3.40	R-22 -3.40	R-22 -3.40
R-30 -14.00	R-27 -8.86	R-30 -3.55	R-30 -3.55	R-30 -3.55	R-30 -3.55
R-38 -14.40	R-34 -9.35	R-38 -3.65	R-38 -3.65	R-38 -3.65	R-38 -3.65
R-49 -14.74	R-34 -9.35	R-49 -3.74	R-49 -3.74	R-49 -3.74	R-49 -3.74
R-60 -14.96	R-34 -9.35	R-60 -3.80	R-60 -3.80	R-60 -3.80	R-60 -3.80
Slope(DD) 4873.24	Slope(DD) 4189.69	Slope(DD) 1174.17	Slope(DD) 1174.17	Slope(DD) 514.26	Slope(DD) 514.26
Curve(DDS) -61.963	Curve(DDS) 12.479	Curve(DDS) -5.901	Curve(DDS) -5.901	Curve(DDS) -.350	Curve(DDS) -.350
Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)
R-0 -7.64	R-0 -5.64	R-0 -2.16	R-0 -2.16	R-0 -2.16	R-0 -2.16
R-5 2ft -8.59	R-5 4ft -7.15	R-5 2ft -2.12	R-5 2ft -2.12	R-5 4ft -1.18	R-5 4ft -1.18
R-5 4ft -8.83	R-5 8ft -7.57	R-5 4ft -2.09	R-5 4ft -2.09	R-5 8ft -1.37	R-5 8ft -1.37
R-10 2ft -8.75	R-10 4ft -7.49	R-10 2ft -2.12	R-10 2ft -2.12	R-10 4ft -1.41	R-10 4ft -1.41
R-10 4ft -9.08	R-10 8ft -8.08	R-10 4ft -2.06	R-10 4ft -2.06	R-10 8ft -1.43	R-10 8ft -1.43
Intercept -9.712	Intercept .000	Intercept -10.939	Intercept -10.939	Intercept .000	Intercept .000
Slope(DD) 4548.03	Slope(DD) 3010.59	Slope(DD) -1071.16	Slope(DD) -1071.16	Slope(DD) 134.18	Slope(DD) 134.18
Curve(DDS) -15.253	Curve(DDS) -18.390	Curve(DDS) 50.073	Curve(DDS) 50.073	Curve(DDS) 1.450	Curve(DDS) 1.450
Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)
R-0 -5.64	R-0 .00	R-0 -1.18	R-0 -1.18	R-0 .00	R-0 .00
R-11 flr -8.30	R-11 flr -7.80	R-11 flr .11	R-11 flr .11	R-11 flr .67	R-11 flr .67
R-19 flr -9.16	R-19 flr -9.06	R-19 flr .29	R-19 flr .29	R-19 flr .76	R-19 flr .76
R-30 flr -9.72	R-30 flr -9.80	R-30 flr .29	R-30 flr .29	R-30 flr .83	R-30 flr .83
Intercept -3.202	Intercept -10.46	Intercept 3.805	Intercept 3.805	R-38 flr .85	R-38 flr .85
Slope(DD) 3503.99	Slope(DD) -3.784	Slope(DD) -1127.32	Slope(DD) -1127.32	R-49 flr .90	R-49 flr .90
Curve(DDS) -327.586	Curve(DDS) 3805.52	Curve(DDS) 95.178	Curve(DDS) 95.178	Intercept 4.125	Intercept 4.125
Infiltration (/sf flr)	Window U-value (/sf)	Infiltration (/sf flr)	Window U-value (/sf)	Slope(DD) -311.15	Slope(DD) -311.15
ELF Ach	1-Pane .00	ELF Ach	1-Pane .00	Curve(DDS) -1.370	Curve(DDS) -1.370
.0007(.83)	2-Pane -8.18	.0007(.48)	2-Pane -8.18	1-Pane .00	1-Pane .00
.0005(.58)	3-Pane -10.33	.0005(.34)	3-Pane -10.33	2-Pane .07	2-Pane .07
.0003(.36)	R-10 -12.86	.0003(.20)	R-10 -12.86	3-Pane .27	3-Pane .27
Slope/.001ELF 15.000	Slope(DD) 3204.74	Slope/.001ELF 1.708	Slope(DD) 3204.74	R-10 .51	R-10 .51
Curve/.001ELF 4.687	Curve(DDS) 17.699	Curve/.001ELF .312	Curve(DDS) 17.699	Slope(DD) -495.89	Slope(DD) -495.89
Base Load = 58.80 MBtu	Base Load = 58.80 MBtu	Base Load = 18.67 MBtu	Base Load = 18.67 MBtu	Typical Load = 12.26 MBtu	Typical Load = 12.26 MBtu
Typical Load = 16.06 MBtu	Typical Load = 16.06 MBtu	Residual Load = 5.05 MBtu	Residual Load = 5.05 MBtu	Residual Load = 5.05 MBtu	Residual Load = 5.05 MBtu

Washington DC WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (Kbtu)		Delta Component (MBtu)		Delta Component (Kbtu)	
Ceiling (/sf)		Wall (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.65	R-7	-3.96	R-7	-2.39	R-7	-.46
R-11	-11.19	R-11	-4.52	R-11	-2.77	R-11	-.53
R-19	-12.57	R-13	-5.15	R-19	-3.11	R-13	-.60
R-22	-13.05	R-19	-5.47	R-22	-3.22	R-19	-.64
R-30	-13.69	R-27	-5.99	R-30	-3.36	R-27	-.67
R-38	-14.07	R-34	-6.31	R-38	-3.44	R-34	-.69
R-49	-14.38			R-49	-3.49		
R-60	-14.58			R-60	-3.53		
Slope(DD)	4593.79	Slope(DD)	4076.50	Slope(DD)	918.63	Slope(DD)	297.48
Curve(DDS)	-35.121	Curve(DDS)	40.965	Curve(DDS)	22.452	Curve(DDS)	29.602
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-8.39	R-0	-6.73	R-0	-1.77	R-0	-1.04
R-5 2ft	-9.13	R-5 4ft	-8.10	R-5 2ft	-1.74	R-5 4ft	-1.18
R-5 4ft	-9.33	R-5 8ft	-8.47	R-5 4ft	-1.71	R-5 8ft	-1.19
R-10 2ft	-9.28	R-10 4ft	-8.41	R-10 2ft	-1.73	R-10 4ft	-1.23
R-10 4ft	-9.54	R-10 8ft	-8.92	R-10 4ft	-1.69	R-10 8ft	-1.24
Intercept	-2.191	Intercept	.000	Intercept	-9.664	Intercept	.000
Slope(DD)	5257.64	Slope(DD)	3490.64	Slope(DD)	-1212.12	Slope(DD)	128.66
Curve(DDS)	-41.616	Curve(DDS)	-19.712	Curve(DDS)	57.039	Curve(DDS)	1.746
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-6.73	R-0	.00	R-0	-1.04	R-0	.00
R-11 flr	-8.90	R-11 flr	-8.04	R-11 flr	-.19	R-11 flr	.63
R-19 flr	-9.66	R-19 flr	-9.33	R-19 flr	.06	R-19 flr	.74
R-30 flr	-10.15	R-30 flr	-10.10	R-30 flr	.21	R-30 flr	.82
Intercept	-2.508	Intercept	-1.26	Intercept	3.185	Intercept	.89
Slope(DD)	3145.91	Slope(DD)	-3.223	Slope(DD)	-943.48	Slope(DD)	3.790
Curve(DDS)	-309.562	Curve(DDS)	3918.12	Curve(DDS)	78.376	Curve(DDS)	-373.34
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach		1-Pane	.00	ELF Ach		1-Pane	.00
.0007(.83)	.00	2-Pane	-8.31	.0007(.48)	.00	2-Pane	.05
.0005(.58)	-4.92	3-Pane	-10.38	.0005(.34)	-.47	3-Pane	-.22
.0003(.35)	-9.38	R-10	-12.81	.0003(.20)	-.96	R-10	.42
			7.11				-.94
Slope/.001ELF	14.854	Slope(DD)	2984.96	Slope/.001ELF	2.208	Slope(DD)	-425.32
Curve/.001ELF	4.688	Curve(DDS)	25.537	Curve/.001ELF	-.208	Curve(DDS)	10.524
Base Load = 55.40 MBtu		Base Load = 16.97 MBtu		Base Load = 16.97 MBtu		Base Load = 16.97 MBtu	
Typical Load = 14.55 MBtu		Typical Load = 11.29 MBtu		Typical Load = 11.29 MBtu		Typical Load = 11.29 MBtu	
Residual Load = 1.28 MBtu		Residual Load = 4.18 MBtu		Residual Load = 4.18 MBtu		Residual Load = 4.18 MBtu	

Tables for Mass Walls and Window Solar Gain Measures

Section 3.B contain tables of insulation measures in mass walls and window solar gain measures for the one-story prototype building in 45 base locations. For each mass wall measure, the tables show the Δ load in MBtu, and the component load in kBtu normalized by ft^2 *relative to the R-0 wood frame wall*. Following the Δ and component loads, the tables give quadratic regression coefficients for the mass walls, with the linear coefficient listed as "Slope", the quadratic coefficient as "Curve", and the intercept relative to the wood-frame wall as "Intercept".

For window solar gain, the tables give first the Δ loads for 184.8 ft^2 of double and triple-pane windows of average orientation relative to single-pane due to changes in shading coefficients. These Δ loads should be added to the Δ loads for window U-values in Section 3.A to derive the net changes in building loads. Component loads are not shown since they will vary depending on the total amount of solar gain, as explained in Section 2.E. Following the Δ loads, the tables give the coefficients for each cardinal orientation (α), and a fifth coefficient for solar usability (β) based on Equation 11. The units for the α 's are kBtu/ft^2 , the β 's are dimensionless. The intercepts from the regressions are not used.

Albuquerque NM One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.57 20.81
R-5 -10.95 7.88
R-10 -15.97 3.42
R-15 -18.11 1.51
R-30 -20.50 -.61
Intercept -.973
Slope(DD) 3400.08
Curve(DDS) -3.063

120 lb Mass Wall
R-0 2.98 20.28
R-5 -11.22 7.64
R-10 -16.15 3.26
R-15 -18.27 1.37
R-30 -20.64 -.74
Intercept -1.071
Slope(DD) 3373.34
Curve(DDS) -7.793

Log Mass Wall
4in -5.92 12.36
6in -11.65 7.26
8in -14.48 4.74
10in -16.05 3.35
12in -17.06 2.45
Intercept .357
Slope(DD) 2419.12
Curve(DDS) 250.334

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.98 1.95
R-5 -4.44 -.23
R-10 -5.13 -.85
R-15 -5.40 -1.09
R-30 -5.75 -1.40
Intercept -1.229
Slope(DD) 397.76
Curve(DDS) 16.309

120 lb Mass Wall
R-0 -2.59 1.41
R-5 -4.70 -.47
R-10 -5.36 -1.05
R-15 -5.61 -1.28
R-30 -5.93 -1.56
Intercept -1.397
Slope(DD) 400.30
Curve(DDS) 8.523

Log Mass Wall
4in -1.81 2.11
6in -3.59 .52
8in -4.19 -.01
10in -4.33 -.14
12in -4.36 -.16
Intercept .918
Slope(DD) -898.60
Curve(DDS) 316.032

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.83	2-Pane	-.67
3-Pane	1.55	3-Pane	-1.22

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-33.562	-74.079	-127.970	-64.114	.013047	-.058493
Cooling	19.923	41.398	30.058	46.376	.013036	-.058951

Atlanta GA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.25 14.13
R-5 -12.72 3.93
R-10 -16.72 .37
R-15 -18.44 -1.16
R-30 -20.47 -2.97
Intercept -3.141
Slope(DD) 2805.20
Curve(DDS) -14.653

120 lb Mass Wall
R-0 -1.62 13.80
R-5 -12.91 3.76
R-10 -16.86 .24
R-15 -18.56 -1.27
R-30 -20.57 -3.06
Intercept -3.210
Slope(DD) 2779.39
Curve(DDS) -16.193

Log Mass Wall
4in -8.96 7.27
6in -13.31 3.40
8in -15.53 1.43
10in -16.81 .29
12in -17.65 -.46
Intercept -2.315
Slope(DD) 2258.23
Curve(DDS) 129.145

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -4.35 -.65
R-5 -6.56 -2.62
R-10 -7.25 -3.23
R-15 -7.52 -3.47
R-30 -7.89 -3.80
Intercept -3.719
Slope(DD) 444.17
Curve(DDS) 6.287

120 lb Mass Wall
R-0 -4.79 -1.04
R-5 -6.86 -2.88
R-10 -7.46 -3.42
R-15 -7.71 -3.64
R-30 -8.07 -3.96
Intercept -3.834
Slope(DD) 397.94
Curve(DDS) 7.285

Log Mass Wall
4in -4.54 -.82
6in -5.90 -2.03
8in -6.52 -2.58
10in -6.75 -2.79
12in -6.85 -2.87
Intercept -2.741
Slope(DD) -78.25
Curve(DDS) 156.564

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.57	2-Pane	-.73
3-Pane	1.08	3-Pane	-1.33

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-30.880	-50.604	-77.435	-46.923	.018499	-.073908
Cooling	30.841	49.814	42.056	53.453	-.001343	-.023132

Birmingham AL One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 2.55 14.86
R-5 -7.49 5.93
R-10 -11.04 2.77
R-15 -12.56 1.41
R-30 -14.39 -.21
Intercept -.496
Slope(DD) 2520.83
Curve(DDS) -19.197

120 lb Mass Wall
R-0 2.18 14.53
R-5 -7.66 5.78
R-10 -11.16 2.66
R-15 -12.66 1.33
R-30 -14.48 -.29
Intercept -.559
Slope(DD) 2503.51
Curve(DDS) -22.049

Log Mass Wall
4in -4.09 8.95
6in -8.04 5.44
8in -10.01 3.68
10in -11.14 2.68
12in -11.87 2.03
Intercept .415
Slope(DD) 1863.08
Curve(DDS) 143.745

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.70 3.41
R-5 -3.78 .67
R-10 -4.79 -.23
R-15 -5.19 -.59
R-30 -5.74 -1.08
Intercept -1.064
Slope(DD) 680.00
Curve(DDS) 2.898

120 lb Mass Wall
R-0 -1.07 3.08
R-5 -4.02 .45
R-10 -4.99 -.41
R-15 -5.42 -.79
R-30 -5.98 -1.29
Intercept -1.288
Slope(DD) 704.31
Curve(DDS) -2.655

Log Mass Wall
4in -1.58 2.62
6in -3.18 1.20
8in -3.90 .56
10in -4.22 .28
12in -4.37 .14
Intercept .142
Slope(DD) 73.13
Curve(DDS) 158.678

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.55	2-Pane	-.86
3-Pane	1.04	3-Pane	-1.57

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-30.264	-57.613	-74.012	-39.414	.019566	-.010262
Cooling	37.149	73.280	48.872	45.048	-.000148	-.051870

Bismarck ND

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.60 48.57
R-5 -22.35 21.92
R-10 -34.23 11.35
R-15 -39.40 6.75
R-30 -45.87 .99
Intercept -.479
Slope(DD) 9202.32
Curve(DDS) -219.660

120 lb Mass Wall
R-0 7.20 48.22
R-5 -22.56 21.73
R-10 -34.38 11.21
R-15 -39.54 6.62
R-30 -45.98 .89
Intercept -.557
Slope(DD) 9174.09
Curve(DDS) -221.212

Log Mass Wall
4in -13.60 29.71
6in -25.06 19.51
8in -31.28 13.97
10in -35.10 10.57
12in -37.70 8.26
Intercept 1.008
Slope(DD) 8129.08
Curve(DDS) 25.402

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.76 .36
R-5 -3.00 -.75
R-10 -3.25 -.97
R-15 -3.34 -1.05
R-30 -3.44 -1.14
Intercept -.961
Slope(DD) 74.53
Curve(DDS) 20.372

120 lb Mass Wall
R-0 -2.28 -.11
R-5 -3.26 -.98
R-10 -3.44 -1.14
R-15 -3.51 -1.20
R-30 -3.64 -1.32
Intercept -1.123
Slope(DD) 78.17
Curve(DDS) 13.836

Log Mass Wall
4in -1.19 .86
6in -2.25 -.08
8in -2.58 -.37
10in -2.62 -.41
12in -2.60 -.39
Intercept .452
Slope(DD) -737.40
Curve(DDS) 217.752

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane 1.28
3-Pane 2.37

1-Pane .00
2-Pane -.42
3-Pane -.76

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
Heating	-49.936	-95.548	-162.236	-85.817	.006586	-.252503
Cooling	7.328	14.581	14.520	16.528	.194447	-.062182

Boise ID One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.03 33.76
R-5 -15.29 13.90
R-10 -23.25 6.81
R-15 -26.68 3.76
R-30 -30.82 .08
Intercept -.684
Slope(DD) 5715.33
Curve(DDS) -53.571

120 lb Mass Wall
R-0 6.51 33.30
R-5 -15.52 13.69
R-10 -23.43 6.65
R-15 -26.83 3.63
R-30 -30.94 -.03
Intercept -.776
Slope(DD) 5692.28
Curve(DDS) -57.676

Log Mass Wall
4in -8.54 19.90
6in -16.87 12.49
8in -21.12 8.71
10in -23.66 6.45
12in -25.35 4.94
Intercept .781
Slope(DD) 4683.76
Curve(DDS) 192.445

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.95 1.08
R-5 -3.82 -.58
R-10 -4.32 -1.03
R-15 -4.50 -1.19
R-30 -4.70 -1.36
Intercept -1.200
Slope(DD) 234.48
Curve(DDS) 19.264

120 lb Mass Wall
R-0 -2.54 .56
R-5 -4.18 -.90
R-10 -4.58 -1.26
R-15 -4.75 -1.41
R-30 -4.93 -1.57
Intercept -1.368
Slope(DD) 196.97
Curve(DDS) 17.437

Log Mass Wall
4in -1.54 1.45
6in -2.95 .19
8in -3.45 -.25
10in -3.56 -.35
12in -3.56 -.35
Intercept .503
Slope(DD) -732.26
Curve(DDS) 254.814

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.08	2-Pane	-.54
3-Pane	2.02	3-Pane	-.97

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-50.481	-89.441	-152.201	-83.052	.009550	-.159518
Cooling	12.197	24.945	23.671	32.459	.044875	-.034589

Boston MA

One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 8.65 36.22
R-5 -14.79 15.36
R-10 -23.16 7.91
R-15 -26.77 4.70
R-30 -31.17 .78
Intercept -.078
Slope(DD) 6042.90
Curve(DDS) -60.464

95 lb Mass Wall
R-0 -1.13 .47
R-5 -2.23 -.51
R-10 -2.51 -.76
R-15 -2.61 -.85
R-30 -2.75 -.97
Intercept -.892
Slope(DD) 139.33
Curve(DDS) 10.996

120 lb Mass Wall
R-0 8.37 35.97
R-5 -14.94 15.23
R-10 -23.29 7.79
R-15 -26.87 4.61
R-30 -31.26 .70
Intercept -.144
Slope(DD) 6024.20
Curve(DDS) -61.453

120 lb Mass Wall
R-0 -1.52 .12
R-5 -2.45 -.71
R-10 -2.69 -.92
R-15 -2.78 -1.00
R-30 -2.90 -1.11
Intercept -1.015
Slope(DD) 124.22
Curve(DDS) 8.671

Log Mass Wall
4in -8.50 20.96
6in -16.70 13.66
8in -21.08 9.76
10in -23.81 7.33
12in -25.66 5.69
Intercept .462
Slope(DD) 5711.69
Curve(DDS) 30.934

Log Mass Wall
4in -.78 .78
6in -1.55 .09
8in -1.91 -.23
10in -2.01 -.32
12in -2.05 -.35
Intercept -.216
Slope(DD) -135.91
Curve(DDS) 102.936

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane .98
3-Pane 1.82

1-Pane .00
2-Pane -.44
3-Pane -.80

Alphas (KBtu/sf)

Beta

Intercept

	North	East	South	West	Beta	Intercept
Heating	-43.297	-72.903	-121.598	-69.021	.008890	-.098387
Cooling	13.035	21.663	20.109	22.291	.051927	-.084028

Brownsville TX One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.12 3.17
R-5 -3.00 .61
R-10 -3.85 -.15
R-15 -4.21 -.47
R-30 -4.52 -.74
Intercept -.710
Slope(DD) 461.04
Curve(DDS) 20.259

120 lb Mass Wall
R-0 -.44 2.89
R-5 -3.14 .48
R-10 -3.96 -.25
R-15 -4.30 -.55
R-30 -4.60 -.81
Intercept -.773
Slope(DD) 451.18
Curve(DDS) 17.241

Log Mass Wall
4in -1.51 1.93
6in -2.87 .72
8in -3.47 .19
10in -3.76 -.07
12in -3.95 -.24
Intercept -.408
Slope(DD) 210.06
Curve(DDS) 111.361

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .55 5.55
R-5 -3.94 1.55
R-10 -5.59 .08
R-15 -6.24 -.50
R-30 -7.01 -1.18
Intercept -1.391
Slope(DD) 1110.99
Curve(DDS) -6.258

120 lb Mass Wall
R-0 .36 5.38
R-5 -4.17 1.35
R-10 -5.78 -.09
R-15 -6.47 -.70
R-30 -7.26 -1.40
Intercept -1.611
Slope(DD) 1124.18
Curve(DDS) -7.138

Log Mass Wall
4in -1.87 3.39
6in -3.47 1.97
8in -4.47 1.08
10in -5.06 .55
12in -5.45 .21
Intercept -1.315
Slope(DD) 1461.57
Curve(DDS) -39.888

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.09	2-Pane	-1.42
3-Pane	.17	3-Pane	-2.60

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-5.990	-8.407	-9.858	-7.927	.116016	-.034475
Cooling	60.084	105.905	87.728	101.020	-.001616	-.033090

Buffalo NY

One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 9.67 41.19
R-5 -16.84 17.60
R-10 -26.43 9.07
R-15 -30.55 5.40
R-30 -35.60 .91
Intercept -.121
Slope(DD) 6965.89
Curve(DDS) -80.873

95 lb Mass Wall
R-0 -.98 .22
R-5 -1.74 -.45
R-10 -1.92 -.61
R-15 -1.99 -.68
R-30 -2.08 -.76
Intercept -.683
Slope(DD) 86.16
Curve(DDS) 8.529

120 lb Mass Wall
R-0 9.37 40.93
R-5 -17.01 17.45
R-10 -26.55 8.96
R-15 -30.66 5.30
R-30 -35.69 .83
Intercept -.180
Slope(DD) 6940.05
Curve(DDS) -81.352

120 lb Mass Wall
R-0 -1.25 -.02
R-5 -1.90 -.60
R-10 -2.05 -.73
R-15 -2.11 -.78
R-30 -2.18 -.85
Intercept -.760
Slope(DD) 67.77
Curve(DDS) 7.882

Log Mass Wall
4in -9.70 23.95
6in -19.10 15.59
8in -24.11 11.13
10in -27.21 8.37
12in -29.31 6.50
Intercept .642
Slope(DD) 6427.48
Curve(DDS) 53.210

Log Mass Wall
4in -.59 .57
6in -1.24 -.01
8in -1.47 -.21
10in -1.52 -.26
12in -1.54 -.28
Intercept .056
Slope(DD) -301.46
Curve(DDS) 111.759

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane .89
3-Pane 1.65

1-Pane .00
2-Pane -.32
3-Pane -.57

Alphas (KBtu/sf)

Beta Intercept

	North	East	South	West	Beta	Intercept
Heating	-46.267	-69.270	-99.603	-65.537	.009967	-.109060
Cooling	5.990	9.563	8.931	10.775	.368728	-.077150

Burlington VT One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 10.53 45.34
R-5 -18.58 19.44
R-10 -29.16 10.02
R-15 -33.73 5.96
R-30 -39.31 .99
Intercept -.169
Slope(DD) 7726.31
Curve(DDS) -96.298

120 lb Mass Wall
R-0 10.17 45.02
R-5 -18.77 19.27
R-10 -29.31 9.89
R-15 -33.85 5.85
R-30 -39.42 .89
Intercept -.247
Slope(DD) 7702.96
Curve(DDS) -97.826

Log Mass Wall
4in -10.63 26.51
6in -21.01 17.27
8in -26.56 12.34
10in -29.99 9.28
12in -32.30 7.23
Intercept .725
Slope(DD) 7115.79
Curve(DDS) 56.936

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.14 .22
R-5 -1.87 -.43
R-10 -2.06 -.59
R-15 -2.13 -.66
R-30 -2.25 -.76
Intercept -.684
Slope(DD) 112.61
Curve(DDS) 5.208

120 lb Mass Wall
R-0 -1.43 -.03
R-5 -2.03 -.57
R-10 -2.19 -.71
R-15 -2.26 -.77
R-30 -2.31 -.82
Intercept -.728
Slope(DD) 75.47
Curve(DDS) 6.204

Log Mass Wall
4in -.71 .61
6in -1.37 .02
8in -1.62 -.20
10in -1.66 -.24
12in -1.68 -.26
Intercept .101
Slope(DD) -313.41
Curve(DDS) 115.280

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.13	2-Pane	-.29
3-Pane	2.10	3-Pane	-.51

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-49.588	-83.416	-139.473	-78.363	.007492	-.184208
Cooling	4.186	7.359	6.876	8.804	.629224	-.083819

Charleston SC One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 1.63 12.35
R-5 -7.56 4.17
R-10 -10.75 1.34
R-15 -12.12 .12
R-30 -13.59 -1.19
Intercept -1.461
Slope(DD) 2145.01
Curve(DDS) - .982

120 lb Mass Wall
R-0 1.16 11.93
R-5 -7.79 3.97
R-10 -10.93 1.18
R-15 -12.27 -.02
R-30 -13.72 -1.31
Intercept -1.558
Slope(DD) 2120.61
Curve(DDS) -3.930

Log Mass Wall
4in -4.02 7.32
6in -7.83 3.93
8in -9.67 2.30
10in -10.67 1.41
12in -11.32 .83
Intercept -.435
Slope(DD) 1420.43
Curve(DDS) 193.019

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.98 2.60
R-5 -4.30 -.36
R-10 -5.40 -1.33
R-15 -5.86 -1.74
R-30 -6.22 -2.06
Intercept -2.152
Slope(DD) 626.03
Curve(DDS) 14.810

120 lb Mass Wall
R-0 -1.48 2.15
R-5 -4.59 -.61
R-10 -5.69 -1.59
R-15 -6.11 -1.97
R-30 -6.45 -2.27
Intercept -2.356
Slope(DD) 616.13
Curve(DDS) 11.442

Log Mass Wall
4in -1.86 1.82
6in -3.49 .37
8in -4.27 -.33
10in -4.64 -.66
12in -4.85 -.84
Intercept -1.228
Slope(DD) 336.34
Curve(DDS) 123.753

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.40	2-Pane	-1.08
3-Pane	.75	3-Pane	-1.99

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-23.186	-39.311	-63.359	-34.691	.028733	-.048477
Cooling	46.223	76.092	68.165	70.553	-.000637	-.012741

Cheyenne WY One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 9.28 43.79
R-5 -19.46 18.22
R-10 -29.71 9.09
R-15 -34.11 5.18
R-30 -39.47 .41
Intercept -.550
Slope(DD) 7364.60
Curve(DDS) -69.619

120 lb Mass Wall
R-0 8.70 43.28
R-5 -19.72 17.98
R-10 -29.92 8.91
R-15 -34.29 5.02
R-30 -39.61 .28
Intercept -.662
Slope(DD) 7339.98
Curve(DDS) -74.163

Log Mass Wall
4in -11.00 25.74
6in -21.53 16.37
8in -27.00 11.51
10in -30.28 8.59
12in -32.47 6.64
Intercept 1.024
Slope(DD) 6289.74
Curve(DDS) 191.654

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.55 -.23
R-5 -2.13 -.74
R-10 -2.21 -.82
R-15 -2.24 -.84
R-30 -2.26 -.86
Intercept -.716
Slope(DD) -7.81
Curve(DDS) 13.617

120 lb Mass Wall
R-0 -1.88 -.52
R-5 -2.27 -.87
R-10 -2.33 -.92
R-15 -2.35 -.94
R-30 -2.35 -.94
Intercept -.799
Slope(DD) -9.86
Curve(DDS) 9.718

Log Mass Wall
4in -.87 .38
6in -1.59 -.26
8in -1.75 -.41
10in -1.74 -.40
12in -1.70 -.36
Intercept .446
Slope(DD) -707.48
Curve(DDS) 176.345

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.56	2-Pane	-.30
3-Pane	2.91	3-Pane	-.53

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-57.741	-124.361	-215.669	-116.245	.006116	-.089002
Cooling	2.464	4.976	4.187	5.280	2.138813	-.053984

Chicago IL One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 8.72 36.99
R-5 -15.37 15.55
R-10 -23.98 7.89
R-15 -27.67 4.61
R-30 -32.17 .60
Intercept -.282
Slope(DD) 6187.95
Curve(DDS) -59.731

120 lb Mass Wall
R-0 8.39 36.70
R-5 -15.56 15.38
R-10 -24.12 7.77
R-15 -27.80 4.49
R-30 -32.29 .50
Intercept -.370
Slope(DD) 6169.21
Curve(DDS) -61.173

Log Mass Wall
4in -8.76 21.44
6in -17.28 13.85
8in -21.83 9.80
10in -24.64 7.30
12in -26.54 5.61
Intercept .254
Slope(DD) 5830.35
Curve(DDS) 47.968

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.47 1.02
R-5 -3.19 -.51
R-10 -3.63 -.90
R-15 -3.80 -1.05
R-30 -4.03 -1.26
Intercept -1.139
Slope(DD) 234.83
Curve(DDS) 15.464

120 lb Mass Wall
R-0 -1.96 .58
R-5 -3.48 -.77
R-10 -3.87 -1.12
R-15 -4.03 -1.26
R-30 -4.24 -1.45
Intercept -1.313
Slope(DD) 218.78
Curve(DDS) 12.519

Log Mass Wall
4in -1.22 1.24
6in -2.39 .20
8in -2.86 -.22
10in -3.02 -.36
12in -3.08 -.41
Intercept -.101
Slope(DD) -274.04
Curve(DDS) 163.176

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.04	2-Pane	-.57
3-Pane	1.94	3-Pane	-1.04

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
Heating	-37.613	-74.980	-139.005	-69.295	.008024	-.072823
Cooling	17.544	31.802	28.050	34.602	.021287	-.090338

Cincinnati OH One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.20 31.19
R-5 -13.13 13.10
R-10 -20.43 6.60
R-15 -23.56 3.82
R-30 -27.34 .45
Intercept -.305
Slope(DD) 5240.57
Curve(DDS) -51.925

120 lb Mass Wall
R-0 6.91 30.93
R-5 -13.27 12.97
R-10 -20.53 6.51
R-15 -23.65 3.74
R-30 -27.42 .38
Intercept -.365
Slope(DD) 5228.36
Curve(DDS) -54.154

Log Mass Wall
4in -7.51 18.10
6in -14.77 11.64
8in -18.60 8.23
10in -20.96 6.13
12in -22.55 4.71
Intercept .358
Slope(DD) 4781.17
Curve(DDS) 67.164

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.65 1.14
R-5 -3.43 -.44
R-10 -3.88 -.84
R-15 -4.07 -1.01
R-30 -4.34 -1.25
Intercept -1.109
Slope(DD) 268.34
Curve(DDS) 13.299

120 lb Mass Wall
R-0 -2.18 .67
R-5 -3.71 -.69
R-10 -4.12 -1.06
R-15 -4.29 -1.21
R-30 -4.52 -1.41
Intercept -1.260
Slope(DD) 246.03
Curve(DDS) 10.080

Log Mass Wall
4in -1.31 1.45
6in -2.60 .30
8in -3.09 -.14
10in -3.20 -.24
12in -3.23 -.26
Intercept .386
Slope(DD) -555.20
Curve(DDS) 216.966

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.78	2-Pane	-.59
3-Pane	1.45	3-Pane	-1.08

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-37.151	-58.246	-99.364	-54.128	.011555	-.075737
Cooling	20.686	35.141	30.700	36.795	.012903	-.062128

Denver C0 One Story Prototype Mass and Window runs

Heating Load			Cooling Load		
Delta Component			Delta Component		
(MBtu) (KBtu)			(MBtu) (KBtu)		
95 lb Mass Wall			95 lb Mass Wall		
R-0	6.45	34.08	R-0	-2.73	.21
R-5	-16.30	13.84	R-5	-4.18	-1.09
R-10	-29.33	2.24	R-10	-.83	1.90
R-15	-27.81	3.60	R-15	-4.57	-1.43
R-30	-31.97	-.11	R-30	-4.68	-1.53
Intercept		-.807	Intercept		-1.251
Slope(DD)	4815.36		Slope(DD)	749.57	
Curve(DDS)	87.283		Curve(DDS)	-72.467	
120 lb Mass Wall			120 lb Mass Wall		
R-0	5.75	33.46	R-0	-3.40	-.39
R-5	-16.60	13.57	R-5	-4.49	-1.36
R-10	-24.56	6.49	R-10	-4.70	-1.55
R-15	-28.00	3.43	R-15	-4.79	-1.63
R-30	-32.12	-.24	R-30	-4.90	-1.73
Intercept		-.896	Intercept		-1.455
Slope(DD)	5706.74		Slope(DD)	80.72	
Curve(DDS)	-52.001		Curve(DDS)	16.219	
Log Mass Wall			Log Mass Wall		
4in	-8.98	20.35	4in	-1.74	1.09
6in	-17.70	12.59	6in	-3.16	-.18
8in	-22.10	8.68	8in	-3.54	-.52
10in	-24.65	6.41	10in	-3.55	-.52
12in	-26.33	4.91	12in	-3.49	-.47
Intercept		1.051	Intercept		.949
Slope(DD)	4427.88		Slope(DD)	-1219.97	
Curve(DDS)	271.532		Curve(DDS)	324.141	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)		
1-Pane	.00	
2-Pane	1.29	
3-Pane	2.42	

1-Pane	.00
2-Pane	-.51
3-Pane	-.92

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-50.000	-112.636	-195.523	-98.823	.008103	-.104505
Cooling	10.611	21.240	17.380	23.263	.106055	-.108635

El Paso TX

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 1.61 12.17
R-5 -7.62 3.95
R-10 -10.75 1.17
R-15 -12.08 -.02
R-30 -13.39 -1.18
Intercept -1.397
Slope(DD) 1989.41
Curve(DDS) 15.602

120 lb Mass Wall
R-0 1.13 11.74
R-5 -7.82 3.77
R-10 -10.90 1.03
R-15 -12.21 -.13
R-30 -13.52 -1.30
Intercept -1.505
Slope(DD) 1989.01
Curve(DDS) 9.322

Log Mass Wall
4in -4.09 7.09
6in -7.93 3.68
8in -9.70 2.10
10in -10.64 1.26
12in -11.24 .73
Intercept -.148
Slope(DD) 1077.01
Curve(DDS) 244.600

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.51 4.29
R-5 -4.19 1.02
R-10 -5.42 -.08
R-15 -5.95 -.55
R-30 -6.60 -1.13
Intercept -1.158
Slope(DD) 856.65
Curve(DDS) -.769

120 lb Mass Wall
R-0 -.91 3.94
R-5 -4.45 .79
R-10 -5.64 -.27
R-15 -6.14 -.72
R-30 -6.77 -1.28
Intercept -1.284
Slope(DD) 823.39
Curve(DDS) -.633

Log Mass Wall
4in -1.97 2.99
6in -3.70 1.45
8in -4.44 .80
10in -4.84 .44
12in -5.01 .29
Intercept .231
Slope(DD) 176.14
Curve(DDS) 155.328

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.51	2-Pane	-.90
3-Pane	.97	3-Pane	-1.66

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-26.763	-56.073	-86.146	-46.612	.022735	-.141425
Cooling	29.775	62.588	44.411	65.974	.003441	-.017241

Fort Worth TX One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 2.57 13.76
R-5 -7.15 5.11
R-10 -10.50 2.13
R-15 -11.91 .88
R-30 -13.49 -.53
Intercept -.789
Slope(DD) 2243.59
Curve(DDS) 1.204

120 lb Mass Wall
R-0 2.19 13.43
R-5 -7.35 4.94
R-10 -10.63 2.02
R-15 -12.03 .77
R-30 -13.60 -.63
Intercept -.863
Slope(DD) 2220.20
Curve(DDS) -.778

Log Mass Wall
4in -3.86 8.04
6in -7.59 4.72
8in -9.46 3.06
10in -10.53 2.11
12in -11.22 1.49
Intercept -.109
Slope(DD) 1778.18
Curve(DDS) 133.331

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .51 4.96
R-5 -3.28 1.58
R-10 -4.63 .38
R-15 -5.21 -.13
R-30 -5.90 -.75
Intercept -.895
Slope(DD) 960.55
Curve(DDS) -8.064

120 lb Mass Wall
R-0 .27 4.74
R-5 -3.49 1.40
R-10 -4.84 .19
R-15 -5.40 -.30
R-30 -6.12 -.94
Intercept -1.087
Slope(DD) 967.92
Curve(DDS) -9.546

Log Mass Wall
4in -1.53 3.14
6in -2.96 1.87
8in -3.80 1.12
10in -4.28 .69
12in -4.58 .43
Intercept -.627
Slope(DD) 1045.43
Curve(DDS) 1.657

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.46	2-Pane	-.88
3-Pane	.86	3-Pane	-1.62

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-23.915	-40.238	-66.500	-37.520	.023757	-.039180
Cooling	34.790	60.086	48.659	66.413	-.000001	-.006814

Fresno CA One Story Prototype Mass and Window runs

Heating Load			Cooling Load		
Delta Component			Delta Component		
	(MBtu)	(KBtu)		(MBtu)	(KBtu)
95 lb Mass Wall			95 lb Mass Wall		
R-0	1.32	13.92	R-0	-2.35	3.74
R-5	-8.79	4.93	R-5	-6.13	.38
R-10	-12.22	1.88	R-10	-7.31	-.67
R-15	-13.69	.57	R-15	-7.76	-1.07
R-30	-15.32	-.88	R-30	-8.35	-1.60
Intercept	-1.025		Intercept	-1.407	
Slope(DD)	2300.44		Slope(DD)	726.94	
Curve(DDS)	4.195		Curve(DDS)	14.203	
120 lb Mass Wall			120 lb Mass Wall		
R-0	.66	13.34	R-0	-3.15	3.03
R-5	-9.07	4.68	R-5	-6.60	-.04
R-10	-12.42	1.70	R-10	-7.62	-.95
R-15	-13.85	.42	R-15	-8.04	-1.32
R-30	-15.47	-1.02	R-30	-8.59	-1.81
Intercept	-1.134		Intercept	-1.550	
Slope(DD)	2278.97		Slope(DD)	647.27	
Curve(DDS)	-2.286		Curve(DDS)	14.088	
Log Mass Wall			Log Mass Wall		
4in	-4.62	8.64	4in	-2.70	3.43
6in	-9.04	4.71	6in	-5.15	1.25
8in	-11.07	2.90	8in	-6.09	.41
10in	-12.12	1.96	10in	-6.36	.17
12in	-12.77	1.39	12in	-6.44	.10
Intercept	.603		Intercept	1.215	
Slope(DD)	1080.35		Slope(DD)	-859.40	
Curve(DDS)	305.596		Curve(DDS)	383.050	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)					
1-Pane	.00		1-Pane	.00	
2-Pane	.50		2-Pane	-.87	
3-Pane	.95		3-Pane	-1.60	

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-26.710	-43.924	-73.966	-42.690	.021732	-.089236
Cooling	25.952	52.789	45.688	63.406	.006371	-.032326

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall

R-0	-1.49	-.04
R-5	-2.24	-.71
R-10	-2.38	-.83
R-15	-2.43	-.87
R-30	-2.48	-.92
Intercept		-.786
Slope(DD)		30.25
Curve(DDS)		13.760

120 lb Mass Wall

R-0	-1.85	-.36
R-5	-2.42	-.87
R-10	-2.52	-.95
R-15	-2.56	-.99
R-30	-2.60	-1.03
Intercept		-.884
Slope(DD)		22.24
Curve(DDS)		10.474

Log Mass Wall

4in	-.89	.50
6in	-1.65	-.18
8in	-1.88	-.39
10in	-1.89	-.39
12in	-1.87	-.38
Intercept		.291
Slope(DD)	-589.79	
Curve(DDS)	165.030	

Deltas for Average Window Orientations (MBtu)

1-Pane	.00
2-Pane	-.32
3-Pane	-.57

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-55.712	-104.291	-172.592	-92.364	.007778	-.203081
Cooling	3.161	6.517	7.467	8.081	.908638	-.023047

Honolulu HI One Story Prototype Mass and Window runs

Heating Load			Cooling Load		
Delta Component			Delta Component		
(MBtu)	(KBtu)		(MBtu)	(KBtu)	
95 lb Mass Wall			95 lb Mass Wall		
R-0	-.07	.01	R-0	-.71	1.11
R-5	-.11	-.03	R-5	-2.96	-.89
R-10	-.11	-.03	R-10	-3.78	-1.62
R-15	-.11	-.03	R-15	-4.18	-1.98
R-30	-.11	-.03	R-30	-4.34	-2.12
Intercept		-.013	Intercept		-2.334
Slope(DD)		-5.60	Slope(DD)		476.17
Curve(DDS)		1.408	Curve(DDS)		5.721
120 lb Mass Wall			120 lb Mass Wall		
R-0	-.09	-.01	R-0	-.98	.87
R-5	-.11	-.03	R-5	-3.27	-1.17
R-10	-.11	-.03	R-10	-4.17	-1.97
R-15	-.11	-.03	R-15	-4.43	-2.20
R-30	-.11	-.03	R-30	-4.52	-2.28
Intercept		-.015	Intercept		-2.450
Slope(DD)		-2.80	Slope(DD)		374.01
Curve(DDS)		.704	Curve(DDS)		17.747
Log Mass Wall			Log Mass Wall		
4in	-.06	.02	4in	-1.21	.66
6in	-.10	-.02	6in	-2.21	-.23
8in	-.11	-.03	8in	-2.81	-.76
10in	-.11	-.03	10in	-3.18	-1.09
12in	-.11	-.03	12in	-3.32	-1.21
Intercept		.012	Intercept		-2.103
Slope(DD)		-32.55	Slope(DD)		690.35
Curve(DDS)		8.804	Curve(DDS)		8.839
Window Solar Gain					
Deltas for Average Window Orientations (MBtu)					
1-Pane		.00	1-Pane		.00
2-Pane		.00	2-Pane		-1.74
3-Pane		.00	3-Pane		-3.21
Alphas (KBtu/sf)					
	North	East	South	West	Beta
Heating	-.046	-.071	-.090	-.071	-13.709700
Cooling	76.444	155.997	125.618	107.318	-.002716
					Intercept
					-.000957
					.086398

Jacksonville FL One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .89 7.56
R-5 -4.86 2.45
R-10 -6.79 .73
R-15 -7.60 .01
R-30 -8.45 -.75
Intercept -.854
Slope(DD) 1235.54
Curve(DDS) 9.819

95 lb Mass Wall
R-0 -.68 2.90
R-5 -3.64 .27
R-10 -4.60 -.59
R-15 -5.06 -1.00
R-30 -5.58 -1.46
Intercept -1.526
Slope(DD) 695.88
Curve(DDS) -1.535

120 lb Mass Wall
R-0 .54 7.25
R-5 -5.03 2.30
R-10 -6.92 .61
R-15 -7.71 -.09
R-30 -8.54 -.83
Intercept -.919
Slope(DD) 1214.85
Curve(DDS) 7.845

120 lb Mass Wall
R-0 -1.04 2.58
R-5 -3.83 .10
R-10 -4.84 -.80
R-15 -5.24 -1.16
R-30 -5.75 -1.61
Intercept -1.690
Slope(DD) 697.78
Curve(DDS) -4.874

Log Mass Wall
4in -2.56 4.49
6in -4.96 2.36
8in -6.12 1.33
10in -6.75 .76
12in -7.14 .42
Intercept -.353
Slope(DD) 858.67
Curve(DDS) 127.305

Log Mass Wall
4in -1.65 2.04
6in -3.01 .83
8in -3.62 .28
10in -3.95 -.01
12in -4.19 -.22
Intercept -.590
Slope(DD) 408.85
Curve(DDS) 81.398

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.30	2-Pane	-1.12
3-Pane	.57	3-Pane	-2.06

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-15.843	-28.554	-45.874	-24.591	.037142	-.036945
Cooling	44.973	83.173	71.588	68.217	-.000246	-.020907

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb	Mass Wall	
R-0	-.02	-.02
R-5	-.02	-.02
R-10	-.02	-.02
R-15	-.02	-.02
R-30	-.02	-.02
Intercept		-.018
Slope(DD)		.00
Curve(DDS)		-.000

120 lb Mass Wall		
R-0	-.02	-.02
R-5	-.02	-.02
R-10	-.02	-.02
R-15	-.02	-.02
R-30	-.02	-.02
Intercept		-.018
Slope(DD)		.00
Curve(DDS)		-.000

Log	Mass	Wall
4in	-.01	-.01
6in	-.02	-.02
8in	-.02	-.02
10in	-.02	-.02
12in	-.02	-.02
Intercept		-.007
Slope(DD)		-10.88
Curve(DDS)		2.503

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.07	2-Pane	-.01
3-Pane	1.99	3-Pane	-.01

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-58.949	-82.496	-114.489	-80.517	.008198	.043927
Cooling	.007	.023	.047	.057805	.213500	-.013247

Kansas City MO One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 6.60 28.92
R-5 -12.26 12.13
R-10 -19.02 6.12
R-15 -21.93 3.53
R-30 -25.46 .38
Intercept -.311
Slope(DD) 4873.12
Curve(DDS) -49.509

120 lb Mass Wall
R-0 6.30 28.65
R-5 -12.40 12.01
R-10 -19.14 6.01
R-15 -22.04 3.43
R-30 -25.56 .30
Intercept -.400
Slope(DD) 4872.57
Curve(DDS) -52.958

Log Mass Wall
4in -6.96 16.85
6in -13.72 10.83
8in -17.29 7.66
10in -19.47 5.72
12in -20.96 4.39
Intercept .353
Slope(DD) 4434.05
Curve(DDS) 65.212

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.31 3.87
R-5 -3.35 1.17
R-10 -4.40 .23
R-15 -4.84 -.16
R-30 -5.52 -.76
Intercept -.799
Slope(DD) 808.21
Curve(DDS) -10.986

120 lb Mass Wall
R-0 -.61 3.61
R-5 -3.55 .99
R-10 -4.55 .10
R-15 -4.98 -.28
R-30 -5.60 -.84
Intercept -.842
Slope(DD) 755.35
Curve(DDS) -7.972

Log Mass Wall
4in -1.52 2.80
6in -2.97 1.50
8in -3.69 .86
10in -4.05 .54
12in -4.27 .35
Intercept -.053
Slope(DD) 462.51
Curve(DDS) 86.361

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.90	2-Pane	-.80
3-Pane	1.68	3-Pane	-1.48

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-40.535	-83.004	-124.884	-54.365	.010969	-.043467
Cooling	30.364	67.811	43.036	44.061	.002044	-.042547

Lake Charles LA One Story Prototype Mass and Window runs

Heating Load

Delta Component		
	(MBtu)	(KBtu)
95 lb Mass Wall		
R-0	1.25	8.88
R-5	-5.21	3.13
R-10	-7.40	1.18
R-15	-8.34	.35
R-30	-9.36	-.56
Intercept		-.694
Slope(DD)	1457.26	
Curve(DDS)	4.017	

120 lb Mass Wall		
R-0	.93	8.60
R-5	-5.37	2.99
R-10	-7.51	1.09
R-15	-8.43	.27
R-30	-9.46	-.65
Intercept		-.764
Slope(DD)	1445.77	
Curve(DDS)	1.351	

Log Mass Wall		
4in	-2.78	5.30
6in	-5.41	2.96
8in	-6.68	1.83
10in	-7.39	1.19
12in	-7.84	.79
Intercept		-.106
Slope(DD)	1028.28	
Curve(DDS)	126.092	

Cooling Load

Delta Component		
	(MBtu)	(KBtu)
95 lb Mass Wall		
R-0	.28	4.58
R-5	-3.22	1.46
R-10	-4.53	.30
R-15	-5.08	-.19
R-30	-5.78	-.82
Intercept		-.980
Slope(DD)	965.40	
Curve(DDS)	-15.040	

120 lb Mass Wall		
R-0	.16	4.47
R-5	-3.45	1.26
R-10	-4.71	.14
R-15	-5.26	-.35
R-30	-5.97	-.99
Intercept		-1.111
Slope(DD)	930.05	
Curve(DDS)	-9.602	

Log Mass Wall		
4in	-1.54	2.96
6in	-2.89	1.76
8in	-3.63	1.10
10in	-4.13	.65
12in	-4.41	.40
Intercept		-.625
Slope(DD)	1030.45	
Curve(DDS)	-7.148	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.30	2-Pane	-1.04
3-Pane	.57	3-Pane	-1.90

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-18.513	-29.136	-43.239	-26.885	.037026	-.021703
Cooling	44.134	76.260	64.049	70.718	-.001502	-.028693

Las Vegas NV One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 1.36 12.08
R-5 -7.69 4.03
R-10 -10.68 1.37
R-15 -11.94 .25
R-30 -13.37 -1.03
Intercept -1.144
Slope(DD) 1962.41
Curve(DDS) 12.948

120 lb Mass Wall
R-0 .83 11.61
R-5 -7.92 3.82
R-10 -10.85 1.22
R-15 -12.08 .12
R-30 -13.48 -1.12
Intercept -1.223
Slope(DD) 1935.58
Curve(DDS) 8.931

Log Mass Wall
4in -4.07 7.25
6in -7.87 3.87
8in -9.63 2.30
10in -10.52 1.51
12in -11.08 1.01
Intercept .338
Slope(DD) 917.86
Curve(DDS) 264.980

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.21 8.01
R-5 -6.13 2.74
R-10 -8.26 .85
R-15 -9.18 .03
R-30 -10.29 -.96
Intercept -1.067
Slope(DD) 1539.48
Curve(DDS) -16.472

120 lb Mass Wall
R-0 -.74 7.54
R-5 -6.49 2.42
R-10 -8.51 .62
R-15 -9.41 -.18
R-30 -10.49 -1.14
Intercept -1.190
Slope(DD) 1475.76
Curve(DDS) -14.440

Log Mass Wall
4in -3.09 5.45
6in -5.78 3.05
8in -7.06 1.91
10in -7.77 1.28
12in -8.13 .96
Intercept .343
Slope(DD) 801.75
Curve(DDS) 166.944

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.53	2-Pane	-.98
3-Pane	1.00	3-Pane	-1.79

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-24.608	-50.486	-89.326	-44.692	.021445	-.101239
Cooling	27.688	64.272	51.513	68.666	.005241	.025594

Los Angeles CA One Story Prototype Mass and Window runs

Heating Load				Cooling Load			
Delta Component (MBtu) (KBtu)				Delta Component (MBtu) (KBtu)			
95 lb Mass Wall				95 lb Mass Wall			
R-0	-.04	8.74		R-0	-.68	.10	
R-5	-7.71	1.92		R-5	-1.02	-.20	
R-10	-10.13	-.24		R-10	-1.07	-.25	
R-15	-11.15	-1.14		R-15	-1.13	-.30	
R-30	-12.04	-1.93		R-30	-1.16	-.33	
Intercept		-1.964		Intercept		-.266	
Slope(DD)		1387.52		Slope(DD)		37.03	
Curve(DDS)		38.930		Curve(DDS)		3.756	
120 lb Mass Wall				120 lb Mass Wall			
R-0	-.79	8.08		R-0	-.78	.01	
R-5	-8.02	1.64		R-5	-1.08	-.26	
R-10	-10.36	-.44		R-10	-1.16	-.33	
R-15	-11.34	-1.31		R-15	-1.18	-.35	
R-30	-12.19	-2.07		R-30	-1.22	-.38	
Intercept		-2.076		Intercept		-.319	
Slope(DD)		1357.35		Slope(DD)		35.83	
Curve(DDS)		32.164		Curve(DDS)		3.240	
Log Mass Wall				Log Mass Wall			
4in	-3.79	5.41		4in	-.39	.36	
6in	-7.37	2.22		6in	-.75	.04	
8in	-8.91	.85		8in	-.82	-.02	
10in	-9.62	.22		10in	-.86	-.06	
12in	-10.05	-.16		12in	-.88	-.08	
Intercept		-.251		Intercept		.154	
Slope(DD)		252.68		Slope(DD)		-184.55	
Curve(DDS)		337.267		Curve(DDS)		61.916	
Window Solar Gain							
Deltas for Average Window Orientations (MBtu)							
1-Pane		.00		1-Pane		.00	
2-Pane		.54		2-Pane		-.30	
3-Pane		1.03		3-Pane		-.53	
Alphas (KBtu/sf) Beta Intercept							
	North	East	South	West			
Heating	-44.153	-65.332	-85.665	-69.967	.022196		-.284815
Cooling	.235	.516	.489	.541247	.921203		-.091191

Medford OR One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.78 26.02
R-5 -14.60 9.66
R-10 -21.12 3.86
R-15 -23.94 1.35
R-30 -27.16 -1.51
Intercept -2.097
Slope(DD) 4577.44
Curve(DDS) -30.744

95 lb Mass Wall
R-0 -3.19 .38
R-5 -5.12 -1.33
R-10 -5.53 -1.70
R-15 -5.68 -1.83
R-30 -5.84 -1.97
Intercept -1.684
Slope(DD) 136.13
Curve(DDS) 29.838

120 lb Mass Wall
R-0 2.82 25.17
R-5 -15.00 9.31
R-10 -21.40 3.61
R-15 -24.18 1.14
R-30 -27.38 -1.71
Intercept -2.265
Slope(DD) 4554.99
Curve(DDS) -41.217

120 lb Mass Wall
R-0 -3.99 -.33
R-5 -5.52 -1.69
R-10 -5.82 -1.96
R-15 -5.93 -2.05
R-30 -6.06 -2.17
Intercept -1.839
Slope(DD) 90.66
Curve(DDS) 25.174

Log Mass Wall
4in -7.69 15.81
6in -15.37 8.98
8in -19.13 5.63
10in -21.16 3.83
12in -22.46 2.67
Intercept .109
Slope(DD) 2932.32
Curve(DDS) 381.131

Log Mass Wall
4in -2.15 1.31
6in -3.92 -.26
8in -4.47 -.75
10in -4.49 -.77
12in -4.43 -.72
Intercept .877
Slope(DD) -1391.16
Curve(DDS) 387.788

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane .66
3-Pane 1.23

1-Pane .00
2-Pane -.55
3-Pane -.99

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-38.150	-52.110	-80.784	-53.708	.015144	-.042401
Cooling	9.583	15.884	17.137	21.225	.188206	.962447

Memphis TN One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.86 17.91
R-5 -8.04 7.32
R-10 -12.25 3.57
R-15 -14.05 1.97
R-30 -16.20 .06
Intercept - .331
Slope(DD) 2977.06
Curve(DDS) -21.581

120 lb Mass Wall
R-0 3.57 17.65
R-5 -8.22 7.16
R-10 -12.37 3.47
R-15 -14.16 1.87
R-30 -16.29 -.02
Intercept - .383
Slope(DD) 2943.29
Curve(DDS) -20.923

Log Mass Wall
4in -4.44 10.52
6in -8.80 6.64
8in -11.11 4.59
10in -12.51 3.34
12in -13.42 2.53
Intercept - .015
Slope(DD) 2756.54
Curve(DDS) 58.555

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.09 4.08
R-5 -3.23 1.28
R-10 -4.34 .30
R-15 -4.85 -.16
R-30 -5.45 -.69
Intercept - .774
Slope(DD) 828.20
Curve(DDS) -10.110

120 lb Mass Wall
R-0 -.28 3.91
R-5 -3.41 1.12
R-10 -4.53 .13
R-15 -5.00 -.29
R-30 -5.66 -.88
Intercept - .953
Slope(DD) 841.06
Curve(DDS) -11.748

Log Mass Wall
4in -1.56 2.77
6in -2.94 1.54
8in -3.60 .95
10in -4.02 .58
12in -4.26 .37
Intercept - .224
Slope(DD) 649.22
Curve(DDS) 49.485

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.59	2-Pane	-.79
3-Pane	1.10	3-Pane	-1.45

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-25.182	-46.235	-82.958	-42.984	.016487	-.010883
Cooling	31.946	56.223	44.416	59.557	-.001367	-.033671

Miami FL One Story Prototype Mass and Window runs

Heating Load Cooling Load

Delta Component Delta Component
(MBtu) (KBtu) (MBtu) (KBtu)

95 lb Mass Wall
R-0 -.24 .91
R-5 -1.21 .05
R-10 -1.46 -.18
R-15 -1.56 -.27
R-30 -1.63 -.33
Intercept -.279
Slope(DD) 102.20
Curve(DDS) 11.992

95 lb Mass Wall
R-0 .62 4.81
R-5 -3.69 .97
R-10 -5.34 -.49
R-15 -6.00 -1.08
R-30 -6.74 -1.74
Intercept -2.070
Slope(DD) 1126.05
Curve(DDS) -11.468

120 lb Mass Wall
R-0 -.41 .76
R-5 -1.29 -.03
R-10 -1.52 -.23
R-15 -1.62 -.32
R-30 -1.68 -.37
Intercept -.322
Slope(DD) 98.83
Curve(DDS) 10.303

120 lb Mass Wall
R-0 .31 4.53
R-5 -4.09 .62
R-10 -5.54 -.67
R-15 -6.18 -1.24
R-30 -6.85 -1.84
Intercept -2.032
Slope(DD) 956.91
Curve(DDS) 6.072

Log Mass Wall
4in -.61 .58
6in -1.13 .12
8in -1.34 -.07
10in -1.44 -.16
12in -1.50 -.21
Intercept -.209
Slope(DD) 9.74
Curve(DDS) 52.456

Log Mass Wall
4in -1.59 2.84
6in -3.12 1.48
8in -4.15 .56
10in -4.73 .05
12in -5.14 -.32
Intercept -2.072
Slope(DD) 1585.94
Curve(DDS) -63.607

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.03	2-Pane	-1.54
3-Pane	.05	3-Pane	-2.85

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-1.403	-2.048	-2.577	-1.895	.317152	-.007584
Cooling	70.903	116.346	113.599	106.614	-.002752	-.021583

Minneapolis MN One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 9.35 45.37
R-5 -18.92 20.22
R-10 -29.78 10.55
R-15 -34.49 6.36
R-30 -40.28 1.21
Intercept -.159
Slope(DD) 8205.13
Curve(DDS) -160.688

120 lb Mass Wall
R-0 9.08 45.13
R-5 -19.07 20.08
R-10 -29.90 10.44
R-15 -34.60 6.26
R-30 -40.40 1.10
Intercept -.258
Slope(DD) 8205.25
Curve(DDS) -163.512

Log Mass Wall
4in -11.20 27.09
6in -21.53 17.89
8in -27.16 12.88
10in -30.69 9.74
12in -33.09 7.61
Intercept .605
Slope(DD) 7660.85
Curve(DDS) -26.648

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.58 .65
R-5 -3.00 -.61
R-10 -3.33 -.90
R-15 -3.46 -1.02
R-30 -3.68 -1.22
Intercept -1.079
Slope(DD) 186.76
Curve(DDS) 13.104

120 lb Mass Wall
R-0 -2.06 .23
R-5 -3.25 -.83
R-10 -3.56 -1.11
R-15 -3.64 -1.18
R-30 -3.77 -1.30
Intercept -1.137
Slope(DD) 122.47
Curve(DDS) 14.873

Log Mass Wall
4in -1.07 1.11
6in -2.13 .16
8in -2.55 -.21
10in -2.65 -.30
12in -2.68 -.33
Intercept .133
Slope(DD) -404.78
Curve(DDS) 171.282

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.12	2-Pane	-.47
3-Pane	2.09	3-Pane	-.86

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-43.733	-81.060	-138.954	-77.440	.007192	-.144884
Cooling	10.580	18.440	17.401	21.050	.113085	-.094345

Nashville TN One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 4.33 20.47
R-5 -9.16 8.47
R-10 -13.96 4.19
R-15 -16.02 2.36
R-30 -18.49 .16
Intercept -.281
Slope(DD) 3421.23
Curve(DDS) -29.026

120 lb Mass Wall
R-0 4.00 20.18
R-5 -9.36 8.29
R-10 -14.10 4.07
R-15 -16.14 2.25
R-30 -18.60 .07
Intercept -.349
Slope(DD) 3388.98
Curve(DDS) -28.979

Log Mass Wall
4in -5.05 12.12
6in -10.01 7.71
8in -12.66 5.35
10in -14.24 3.95
12in -15.27 3.03
Intercept .161
Slope(DD) 3121.00
Curve(DDS) 69.861

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.03 2.79
R-5 -3.80 .33
R-10 -4.66 -.44
R-15 -5.01 -.75
R-30 -5.53 -1.21
Intercept -1.163
Slope(DD) 594.42
Curve(DDS) 3.847

120 lb Mass Wall
R-0 -1.47 2.40
R-5 -4.09 .07
R-10 -4.91 -.66
R-15 -5.26 -.97
R-30 -5.74 -1.40
Intercept -1.340
Slope(DD) 572.07
Curve(DDS) 2.744

Log Mass Wall
4in -1.58 2.30
6in -3.12 .93
8in -3.87 .26
10in -4.15 .01
12in -4.26 -.08
Intercept -.047
Slope(DD) 2.74
Curve(DDS) 165.785

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	..00
2-Pane	.58	2-Pane	-.73
3-Pane	1.08	3-Pane	-1.33

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-27.511	-44.348	-74.397	-42.917	.016194	-.030420
Cooling	29.151	48.712	40.690	47.631	.002913	-.032631

New York NY One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.74 31.46
R-5 -12.85 13.14
R-10 -20.13 6.66
R-15 -23.25 3.88
R-30 -27.01 .54
Intercept -.201
Slope(DD) 5175.48
Curve(DDS) -39.976

120 lb Mass Wall
R-0 7.46 31.21
R-5 -13.00 13.00
R-10 -20.25 6.55
R-15 -23.35 3.79
R-30 -27.10 .45
Intercept -.268
Slope(DD) 5158.64
Curve(DDS) -41.234

Log Mass Wall
4in -7.27 18.10
6in -14.46 11.70
8in -18.29 8.30
10in -20.66 6.19
12in -22.27 4.75
Intercept .226
Slope(DD) 4918.52
Curve(DDS) 40.226

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.00 1.17
R-5 -2.53 -.19
R-10 -2.97 -.58
R-15 -3.14 -.73
R-30 -3.37 -.94
Intercept -.870
Slope(DD) 261.43
Curve(DDS) 8.775

120 lb Mass Wall
R-0 -1.35 .86
R-5 -2.75 -.39
R-10 -3.17 -.76
R-15 -3.33 -.90
R-30 -3.58 -1.12
Intercept -1.058
Slope(DD) 273.81
Curve(DDS) 4.549

Log Mass Wall
4in -.89 1.27
6in -1.85 .41
8in -2.29 .02
10in -2.47 -.14
12in -2.55 -.21
Intercept -.212
Slope(DD) 5.91
Curve(DDS) 101.362

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.82	2-Pane	-.50
3-Pane	1.52	3-Pane	-.91

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-38.631	-60.106	-97.645	-58.638	.010480	-.159122
Cooling	16.519	25.781	24.953	27.258	.031140	-.081255

Oklahoma City OK One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 4.86 21.83
R-5 -9.64 8.93
R-10 -14.73 4.40
R-15 -16.89 2.47
R-30 -19.51 .14
Intercept -.308
Slope(DD) 3583.99
Curve(DDS) -22.243

120 lb Mass Wall
R-0 4.55 21.55
R-5 -9.84 8.75
R-10 -14.86 4.28
R-15 -17.01 2.37
R-30 -19.62 .04
Intercept -.374
Slope(DD) 3550.79
Curve(DDS) -21.759

Log Mass Wall
4in -5.35 12.74
6in -10.60 8.07
8in -13.37 5.61
10in -15.02 4.14
12in -16.11 3.17
Intercept .240
Slope(DD) 3213.17
Curve(DDS) 85.906

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.62 3.24
R-5 -3.55 .63
R-10 -4.54 -.25
R-15 -4.95 -.62
R-30 -5.52 -1.13
Intercept -1.155
Slope(DD) 709.13
Curve(DDS) -3.435

120 lb Mass Wall
R-0 -1.00 2.90
R-5 -3.76 .44
R-10 -4.76 -.45
R-15 -5.17 -.81
R-30 -5.67 -1.26
Intercept -1.304
Slope(DD) 698.12
Curve(DDS) -5.586

Log Mass Wall
4in -1.56 2.40
6in -2.94 1.17
8in -3.62 .57
10in -3.95 .27
12in -4.22 .03
Intercept -.444
Slope(DD) 521.34
Curve(DDS) 68.943

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.72	2-Pane	-.82
3-Pane	1.35	3-Pane	-1.51

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-31.634	-58.815	-96.792	-54.799	.013497	.029556
Cooling	31.949	56.506	45.783	62.788	-.000527	-.063606

Omaha NB

One Story Prototype Mass and Window runs

Heating Load

Delta Component		
	(MBtu)	(KBtu)
95 lb Mass Wall		
R-0	8.37	36.14
R-5	-15.06	15.29
R-10	-23.50	7.78
R-15	-27.12	4.56
R-30	-31.50	.66
Intercept		-.220
Slope(DD)	6075.80	
Curve(DDS)	-63.345	

120 lb Mass Wall		
R-0	8.05	35.86
R-5	-15.23	15.14
R-10	-23.63	7.66
R-15	-27.23	4.46
R-30	-31.60	.57
Intercept		-.292
Slope(DD)	6056.62	
Curve(DDS)	-64.871	

Log Mass Wall		
4in	-8.65	20.99
6in	-16.98	13.58
8in	-21.40	9.65
10in	-24.12	7.23
12in	-25.96	5.59
Intercept		.520
Slope(DD)	5572.23	
Curve(DDS)	65.034	

Cooling Load

Delta Component		
	(MBtu)	(KBtu)
95 lb Mass Wall		
R-0	-1.23	2.10
R-5	-3.51	.07
R-10	-4.17	-.52
R-15	-4.43	-.75
R-30	-4.79	-1.07
Intercept		-.960
Slope(DD)	406.29	
Curve(DDS)	11.368	

120 lb Mass Wall		
R-0	-1.65	1.73
R-5	-3.76	-.15
R-10	-4.38	-.70
R-15	-4.63	-.93
R-30	-5.00	-1.25
Intercept		-1.140
Slope(DD)	408.30	
Curve(DDS)	7.214	

Log Mass Wall		
4in	-1.45	1.90
6in	-2.82	.69
8in	-3.40	.17
10in	-3.59	-.00
12in	-3.70	-.10
Intercept		.197
Slope(DD)	-206.17	
Curve(DDS)	174.640	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.02	2-Pane	-.69
3-Pane	1.89	3-Pane	-1.27

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-39.856	-73.986	-134.997	-68.479	.008432	-.149947
Cooling	21.760	40.569	34.311	45.488	.012970	-.088089

Philadelphia PA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.03 30.37
R-5 -12.83 12.70
R-10 -19.89 6.42
R-15 -22.92 3.72
R-30 -26.59 .45
Intercept -.242
Slope(DD) 5050.64
Curve(DDS) -44.304

120 lb Mass Wall
R-0 6.68 30.06
R-5 -12.98 12.56
R-10 -20.00 6.32
R-15 -23.02 3.63
R-30 -26.68 .37
Intercept -.316
Slope(DD) 5045.46
Curve(DDS) -48.296

Log Mass Wall
4in -7.22 17.69
6in -14.35 11.35
8in -18.11 8.00
10in -20.37 5.99
12in -21.90 4.63
Intercept .545
Slope(DD) 4500.81
Curve(DDS) 95.405

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.34 1.33
R-5 -3.07 -.21
R-10 -3.56 -.64
R-15 -3.75 -.81
R-30 -4.01 -1.04
Intercept -.938
Slope(DD) 290.16
Curve(DDS) 10.408

120 lb Mass Wall
R-0 -1.77 .95
R-5 -3.34 -.45
R-10 -3.77 -.83
R-15 -3.95 -.99
R-30 -4.20 -1.21
Intercept -1.086
Slope(DD) 269.09
Curve(DDS) 8.696

Log Mass Wall
4in -1.19 1.47
6in -2.35 .43
8in -2.82 .02
10in -3.01 -.15
12in -3.05 -.19
Intercept .092
Slope(DD) -232.30
Curve(DDS) 156.381

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.87	2-Pane	-.56
3-Pane	1.62	3-Pane	-1.02

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-36.379	-61.961	-113.110	-57.881	.009707	-.103012
Cooling	19.086	31.325	29.623	35.812	.013840	-.031879

Phoenix AZ One Story Prototype Mass and Window runs

Heating Load			Cooling Load		
Delta Component			Delta Component		
(MBtu) (KBtu)			(MBtu) (KBtu)		
95 lb Mass Wall			95 lb Mass Wall		
R-0	-.98	5.29	R-0	.95	11.50
R-5	-6.05	.77	R-5	-7.21	4.24
R-10	-7.56	-.57	R-10	-10.14	1.63
R-15	-8.17	-1.11	R-15	-11.37	.54
R-30	-8.67	-1.56	R-30	-12.93	-.85
Intercept	-1.441		Intercept	-1.059	
Slope(DD)	775.96		Slope(DD)	2109.48	
Curve(DDS)	39.528		Curve(DDS)	-21.602	
120 lb Mass Wall			120 lb Mass Wall		
R-0	-1.63	4.71	R-0	.44	11.05
R-5	-6.32	.53	R-5	-7.63	3.86
R-10	-7.74	-.73	R-10	-10.41	1.39
R-15	-8.33	-1.26	R-15	-11.62	.31
R-30	-8.80	-1.67	R-30	-13.16	-1.06
Intercept	-1.535		Intercept	-1.180	
Slope(DD)	751.91		Slope(DD)	2019.72	
Curve(DDS)	33.296		Curve(DDS)	-15.621	
Log Mass Wall			Log Mass Wall		
4in	-3.04	3.45	4in	-3.56	7.49
6in	-5.73	1.06	6in	-7.02	4.41
8in	-6.76	.14	8in	-8.75	2.87
10in	-7.14	-.20	10in	-9.67	2.05
12in	-7.36	-.39	12in	-10.23	1.55
Intercept	.312		Intercept	.433	
Slope(DD)	-500.55		Slope(DD)	1323.93	
Curve(DDS)	352.432		Curve(DDS)	173.227	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)		
1-Pane	.00	
2-Pane	.21	
3-Pane	.40	

1-Pane	.00
2-Pane	-1.16
3-Pane	-2.12

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-15.022	-24.606	-31.009	-20.284	.055144	-.200102
Cooling	34.200	77.679	67.536	83.439	.002107	-.044129

Pittsburgh PA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 8.02 36.21
R-5 -15.53 15.26
R-10 -23.98 7.74
R-15 -27.61 4.51
R-30 -32.06 .55
Intercept -.292
Slope(DD) 6111.04
Curve(DDS) -64.523

120 lb Mass Wall
R-0 7.60 35.84
R-5 -15.74 15.07
R-10 -24.13 7.60
R-15 -27.75 4.38
R-30 -32.18 .44
Intercept -.382
Slope(DD) 6091.30
Curve(DDS) -67.388

Log Mass Wall
4in -8.79 21.25
6in -17.33 13.65
8in -21.82 9.66
10in -24.56 7.22
12in -26.39 5.59
Intercept .660
Slope(DD) 5447.54
Curve(DDS) 105.273

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane .87
3-Pane 1.62

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.85 .34
R-5 -3.07 -.75
R-10 -3.32 -.97
R-15 -3.43 -1.07
R-30 -3.55 -1.18
Intercept -1.004
Slope(DD) 102.70
Curve(DDS) 17.044

120 lb Mass Wall
R-0 -2.36 -.12
R-5 -3.30 -.95
R-10 -3.52 -1.15
R-15 -3.62 -1.24
R-30 -3.73 -1.34
Intercept -1.172
Slope(DD) 113.83
Curve(DDS) 9.801

Log Mass Wall
4in -1.20 .92
6in -2.26 -.03
8in -2.60 -.33
10in -2.64 -.37
12in -2.62 -.35
Intercept .489
Slope(DD) -726.45
Curve(DDS) 216.549

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-47.337	-62.301	-99.780	-75.105	.010820	-.093961
Cooling	12.013	13.750	16.530	24.913	.115445	-.085631

Portland ME One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 10.16 44.13
R-5 -18.44 18.68
R-10 -28.72 9.53
R-15 -33.14 5.60
R-30 -38.54 .79
Intercept - .268
Slope(DD) 7436.37
Curve(DDS) -79.697

120 lb Mass Wall
R-0 9.71 43.73
R-5 -18.65 18.49
R-10 -28.87 9.40
R-15 -33.27 5.48
R-30 -38.66 .69
Intercept - .357
Slope(DD) 7419.54
Curve(DDS) -83.523

Log Mass Wall
4in -10.47 25.77
6in -20.72 16.65
8in -26.15 11.82
10in -29.47 8.86
12in -31.71 6.87
Intercept .741
Slope(DD) 6738.45
Curve(DDS) 97.630

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.19 -.03
R-5 -1.81 -.58
R-10 -1.94 -.70
R-15 -1.98 -.73
R-30 -2.05 -.80
Intercept -.700
Slope(DD) 47.76
Curve(DDS) 9.100

120 lb Mass Wall
R-0 -1.50 -.31
R-5 -1.99 -.74
R-10 -2.08 -.82
R-15 -2.10 -.84
R-30 -2.15 -.88
Intercept -.768
Slope(DD) 20.06
Curve(DDS) 8.886

Log Mass Wall
4in -.69 .42
6in -1.29 -.12
8in -1.50 -.31
10in -1.52 -.32
12in -1.49 -.30
Intercept .182
Slope(DD) -433.80
Curve(DDS) 126.985

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.12	2-Pane	-.28
3-Pane	2.08	3-Pane	-.49

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-51.808	-83.089	-136.151	-82.981	.007923	-.161722
Cooling	4.299	7.052	6.804	7.270	.703054	-.081469

Portland OR One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 4.19 25.96
R-5 -14.10 9.69
R-10 -20.50 3.99
R-15 -23.25 1.54
R-30 -26.43 -1.29
Intercept -1.825
Slope(DD) 4456.82
Curve(DDS) -21.342

95 lb Mass Wall
R-0 -1.56 .23
R-5 -2.71 -.79
R-10 -2.93 -.99
R-15 -3.02 -1.07
R-30 -3.12 -1.16
Intercept -1.012
Slope(DD) 71.73
Curve(DDS) 18.508

120 lb Mass Wall
R-0 3.38 25.24
R-5 -14.48 9.35
R-10 -20.78 3.74
R-15 -23.49 1.33
R-30 -26.63 -1.46
Intercept -1.970
Slope(DD) 4414.97
Curve(DDS) -26.884

120 lb Mass Wall
R-0 -2.10 -.25
R-5 -2.98 -1.03
R-10 -3.15 -1.19
R-15 -3.22 -1.25
R-30 -3.29 -1.31
Intercept -1.152
Slope(DD) 52.81
Curve(DDS) 14.409

Log Mass Wall
4in -7.48 15.58
6in -14.77 9.09
8in -18.36 5.89
10in -20.38 4.10
12in -21.68 2.94
Intercept .181
Slope(DD) 3147.35
Curve(DDS) 307.422

Log Mass Wall
4in -.94 .78
6in -1.95 -.12
8in -2.33 -.46
10in -2.37 -.49
12in -2.34 -.47
Intercept .228
Slope(DD) -647.27
Curve(DDS) 202.218

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.76	2-Pane	-.38
3-Pane	1.44	3-Pane	-.68

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-52.468	-93.714	-98.498	-52.942	.014879	-.401812
Cooling	6.267	18.129	9.157	4.310	.414196	.028915

Reno NV One Story Prototype Mass and Window runs

Heating Load Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
95 lb Mass Wall			95 lb Mass Wall		
R-0	4.34	30.12	R-0	-3.19	.39
R-5	-16.35	11.71	R-5	-5.00	-1.22
R-10	-23.62	5.24	R-10	-5.35	-1.53
R-15	-26.75	2.46	R-15	-5.49	-1.66
R-30	-30.44	-.83	R-30	-5.62	-1.77
Intercept	-1.336		Intercept	-1.454	
Slope(DD)	5123.41		Slope(DD)	98.05	
Curve(DDS)	-32.456		Curve(DDS)	30.753	
120 lb Mass Wall			120 lb Mass Wall		
R-0	3.31	29.21	R-0	-4.03	-.36
R-5	-16.78	11.33	R-5	-5.38	-1.56
R-10	-23.93	4.97	R-10	-5.65	-1.80
R-15	-27.02	2.22	R-15	-5.74	-1.88
R-30	-30.67	-1.03	R-30	-5.83	-1.96
Intercept	-1.515		Intercept	-1.616	
Slope(DD)	5095.09		Slope(DD)	63.69	
Curve(DDS)	-43.112		Curve(DDS)	23.985	
Log Mass Wall			Log Mass Wall		
4in	-8.72	18.50	4in	-1.99	1.46
6in	-17.30	10.87	6in	-3.80	-.15
8in	-21.45	7.17	8in	-4.31	-.61
10in	-23.71	5.16	10in	-4.30	-.60
12in	-25.14	3.89	12in	-4.20	-.51
Intercept	1.291		Intercept	1.355	
Slope(DD)	3159.61		Slope(DD)	-1624.27	
Curve(DDS)	441.299		Curve(DDS)	424.946	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.19	2-Pane	-.60
3-Pane	2.23	3-Pane	-1.08

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-49.219	-111.056	-196.146	-92.120	.009334	-.098980
Cooling	11.224	23.471	20.030	28.667	.096144	-.048575

Salt Lake City U One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 6.58 32.85
R-5 -15.22 13.45
R-10 -22.98 6.54
R-15 -26.33 3.56
R-30 -30.31 .02
Intercept -.692
Slope(DD) 5538.40
Curve(DDS) -47.810

120 lb Mass Wall
R-0 6.05 32.38
R-5 -15.46 13.23
R-10 -23.16 6.38
R-15 -26.48 3.43
R-30 -30.44 -.10
Intercept -.789
Slope(DD) 5515.90
Curve(DDS) -52.087

Log Mass Wall
4in -8.51 19.42
6in -16.70 12.13
8in -20.89 8.40
10in -23.35 6.21
12in -24.99 4.75
Intercept .783
Slope(DD) 4490.50
Curve(DDS) 207.098

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -2.14 1.57
R-5 -4.52 -.54
R-10 -5.09 -1.05
R-15 -5.30 -1.24
R-30 -5.61 -1.51
Intercept -1.279
Slope(DD) 282.69
Curve(DDS) 25.363

120 lb Mass Wall
R-0 -2.84 .95
R-5 -4.84 -.83
R-10 -5.33 -1.26
R-15 -5.54 -1.45
R-30 -5.80 -1.68
Intercept -1.440
Slope(DD) 266.31
Curve(DDS) 18.512

Log Mass Wall
4in -1.94 1.75
6in -3.57 .30
8in -4.09 -.16
10in -4.16 -.22
12in -4.20 -.26
Intercept .925
Slope(DD) -965.28
Curve(DDS) 309.166

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.12	2-Pane	-.66
3-Pane	2.09	3-Pane	-1.20

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-48.785	-93.332	-163.448	-86.551	.009277	-.126593
Cooling	15.283	33.198	26.211	37.441	.040661	-.030251

San Antonio TX One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .64 8.22
R-5 -5.89 2.41
R-10 -7.99 .54
R-15 -8.88 -.25
R-30 -9.73 -1.01
Intercept -1.051
Slope(DD) 1269.39
Curve(DDS) 24.274

120 lb Mass Wall
R-0 .15 7.79
R-5 -6.11 2.22
R-10 -8.16 .39
R-15 -9.02 -.37
R-30 -9.85 -1.11
Intercept -1.142
Slope(DD) 1249.19
Curve(DDS) 20.267

Log Mass Wall
4in -3.04 4.95
6in -5.88 2.42
8in -7.16 1.28
10in -7.81 .70
12in -8.21 .35
Intercept -.082
Slope(DD) 576.91
Curve(DDS) 213.053

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .37 5.22
R-5 -3.66 1.63
R-10 -5.07 .37
R-15 -5.69 -.18
R-30 -6.43 -.84
Intercept -.968
Slope(DD) 1014.17
Curve(DDS) -8.080

120 lb Mass Wall
R-0 .15 5.02
R-5 -3.84 1.47
R-10 -5.25 .21
R-15 -5.85 -.32
R-30 -6.60 -.99
Intercept -1.114
Slope(DD) 1011.53
Curve(DDS) -8.695

Log Mass Wall
4in -1.66 3.41
6in -3.23 2.01
8in -4.07 1.26
10in -4.59 .80
12in -4.87 .55
Intercept -.370
Slope(DD) 946.90
Curve(DDS) 28.979

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.27	2-Pane	-1.04
3-Pane	.51	3-Pane	-1.92

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-18.517	-29.415	-36.192	-26.230	.043338	-.124841
Cooling	42.401	67.528	62.273	78.952	-.000548	-.034356

San Diego CA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.54 5.89
R-5 -6.32 .75
R-10 -8.07 -.81
R-15 -8.79 -1.45
R-30 -9.26 -1.87
Intercept -1.835
Slope(DD) 859.35
Curve(DDS) 48.196

120 lb Mass Wall
R-0 -1.18 5.32
R-5 -6.56 .53
R-10 -8.31 -1.03
R-15 -8.94 -1.59
R-30 -9.41 -2.00
Intercept -1.964
Slope(DD) 852.56
Curve(DDS) 40.430

Log Mass Wall
4in -3.13 3.58
6in -5.95 1.07
8in -7.09 .06
10in -7.56 -.36
12in -7.85 -.62
Intercept -.296
Slope(DD) -180.10
Curve(DDS) 319.782

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.28 .05
R-5 -1.82 -.43
R-10 -1.93 -.52
R-15 -2.02 -.60
R-30 -2.08 -.66
Intercept -.566
Slope(DD) 77.87
Curve(DDS) 4.253

120 lb Mass Wall
R-0 -1.60 -.23
R-5 -1.97 -.56
R-10 -2.12 -.69
R-15 -2.15 -.72
R-30 -2.17 -.74
Intercept -.649
Slope(DD) 57.52
Curve(DDS) 3.178

Log Mass Wall
4in -.65 .61
6in -1.25 .08
8in -1.42 -.07
10in -1.45 -.10
12in -1.49 -.13
Intercept .264
Slope(DD) -320.68
Curve(DDS) 107.334

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.34	2-Pane	-.35
3-Pane	.65	3-Pane	-.62

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-31.951	-41.345	-55.026	-42.541	.034901	-.359778
Cooling	4.927	8.470	8.347	10.197	.557238	-.062756

San Francisco CA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.58 19.61
R-5 -10.27 7.28
R-10 -15.06 3.02
R-15 -17.11 1.20
R-30 -19.36 -.81
Intercept -1.198
Slope(DD) 3233.18
Curve(DDS) -1.795

120 lb Mass Wall
R-0 3.05 19.14
R-5 -10.50 7.08
R-10 -15.22 2.88
R-15 -17.24 1.08
R-30 -19.48 -.91
Intercept -1.283
Slope(DD) 3212.62
Curve(DDS) -6.596

Log Mass Wall
4in -5.45 11.57
6in -10.85 6.77
8in -13.51 4.40
10in -14.98 3.09
12in -15.91 2.26
Intercept .352
Slope(DD) 2208.35
Curve(DDS) 246.595

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.38 -.06
R-5 -.44 -.12
R-10 -.45 -.13
R-15 -.46 -.14
R-30 -.47 -.14
Intercept -.116
Slope(DD) 9.41
Curve(DDS) .366

120 lb Mass Wall
R-0 -.43 -.11
R-5 -.47 -.14
R-10 -.47 -.14
R-15 -.47 -.14
R-30 -.48 -.15
Intercept -.116
Slope(DD) .11
Curve(DDS) .799

Log Mass Wall
4in -.22 .08
6in -.37 -.06
8in -.39 -.07
10in -.38 -.06
12in -.37 -.06
Intercept .163
Slope(DD) -183.45
Curve(DDS) 41.565

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.09	2-Pane	-.07
3-Pane	2.07	3-Pane	-.12

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-65.635	-107.513	-165.029	-125.357	.010747	-.197964
Cooling	.524	1.226	1.478	1.066	7.235912	-.021202

Seattle WA

One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.41 33.44
R-5 -14.56 13.89
R-10 -22.37 6.94
R-15 -25.72 3.95
R-30 -29.79 .33
Intercept -.416
Slope(DD) 5591.63
Curve(DDS) -49.490

95 lb Mass Wall
R-0 -.62 -.03
R-5 -.92 -.30
R-10 -.97 -.34
R-15 -.99 -.36
R-30 -1.02 -.39
Intercept -.332
Slope(DD) 14.73
Curve(DDS) 5.155

120 lb Mass Wall
R-0 6.96 33.04
R-5 -14.77 13.70
R-10 -22.52 6.80
R-15 -25.86 3.83
R-30 -29.91 .23
Intercept -.509
Slope(DD) 5576.08
Curve(DDS) -53.410

120 lb Mass Wall
R-0 -.79 -.18
R-5 -1.00 -.37
R-10 -1.04 -.41
R-15 -1.05 -.41
R-30 -1.08 -.44
Intercept -.384
Slope(DD) 15.22
Curve(DDS) 3.123

Log Mass Wall
4in -8.08 19.65
6in -16.09 12.52
8in -20.24 8.83
10in -22.73 6.62
12in -24.39 5.14
Intercept .886
Slope(DD) 4749.60
Curve(DDS) 150.610

Log Mass Wall
4in -.33 .23
6in -.64 -.05
8in -.72 -.12
10in -.75 -.15
12in -.73 -.13
Intercept .114
Slope(DD) -218.74
Curve(DDS) 63.649

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane .98
3-Pane 1.84

1-Pane .00
2-Pane -.16
3-Pane -.29

Alphas (KBtu/sf)

Beta Intercept

	North	East	South	West	Beta	Intercept
Heating	-60.738	-86.417	-121.839	-86.124	.010924	-.200868
Cooling	1.811	3.350	4.133	5.809	1.163168	-.036479

Washington DC One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 5.95 26.30
R-5 -11.18 11.06
R-10 -17.31 5.60
R-15 -19.94 3.26
R-30 -23.16 .40
Intercept -.215
Slope(DD) 4419.77
Curve(DDS) -44.458

120 lb Mass Wall
R-0 5.67 26.05
R-5 -11.31 10.94
R-10 -17.39 5.53
R-15 -20.03 3.18
R-30 -23.24 .33
Intercept -.280
Slope(DD) 4416.39
Curve(DDS) -47.657

Log Mass Wall
4in -6.39 15.32
6in -12.55 9.84
8in -15.77 6.97
10in -17.75 5.21
12in -19.10 4.01
Intercept .417
Slope(DD) 3974.20
Curve(DDS) 68.002

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.19 2.08
R-5 -3.42 .09
R-10 -4.10 -.51
R-15 -4.39 -.77
R-30 -4.76 -1.10
Intercept -1.031
Slope(DD) 450.20
Curve(DDS) 6.021

120 lb Mass Wall
R-0 -1.58 1.73
R-5 -3.62 -.08
R-10 -4.28 -.67
R-15 -4.55 -.91
R-30 -4.89 -1.21
Intercept -1.143
Slope(DD) 435.47
Curve(DDS) 3.435

Log Mass Wall
4in -1.40 1.89
6in -2.78 .66
8in -3.32 .18
10in -3.55 -.02
12in -3.64 -.10
Intercept .185
Slope(DD) -207.12
Curve(DDS) 174.249

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.77	2-Pane	-.72
3-Pane	1.44	3-Pane	-1.32

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-34.732	-56.477	-97.795	-54.820	.011459	.013901
Cooling	26.241	40.473	39.431	47.690	.008840	-.037545

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APPENDIX A. MASTER DOE-2.1C INPUT FILE

Because of the need to make and catalogue the large number of DOE-2 simulations, an automated input/output procedure has been developed. A single master input file was created and used for the entire data base. The input file is processed by an utility program and reduced to a DOE-2 readable input file with the selected parametric inputs and necessary foundation flux data.

POST-PROCESSOR PARTIAL ..

[illegible]

\$ Internal loads as in PNL data base runs (January 1987)

	INPUT	LOADS ..					
*Dummy	TITLE	LINE-1	*PROTOTYPE	FOUNDATION	OPTION	AND CODE	*
*Dummy		LINE-2	*LOCATION	WEATHER TAPE	WALL	EQUIPMENT	*
*Dummy		LINE-3	*				*
*Dummy		LINE-4	*				*
*Dummy		LINE-5	*				*

PARAMETER

```

$
$      IWALLAREA = area of interior walls
$
* ---- prototype parameters -----
$One Story      $ FLOORAREA=1540 PERIM=166 IWALLAREA=1088
$One Story      $ BSMTAREA=1540
$One Story      $ ROOFZ=8.0 ROOFHT=14.757 ROOFWD=27.5
$One Story      $ WALLWD=41.5 WALLHT=8.0 WINDOWWD=11.55
$One Story      $ WALLX=61.5 SHADEX=81.5
$One Story      $ INTLOAD=56857 LATLOAD=.2138
*
$Two Story      $ FLOORAREA=2240 PERIM=136 IWALLAREA=1560
$Two Story      $ BSMTAREA=1120
$Two Story      $ ROOFZ=16.0 ROOFHT=14.757 ROOFWD=20.0
$Two Story      $ WALLWD=34.0 WALLHT=16.0 WINDOWWD=8.4
$Two Story      $ WALLX=54.0 SHADEX=74.0
$Two Story      $ INTLOAD=62724 LATLOAD=.1938
*
$Split Level    $ FLOORAREA=1904 PERIM=84 IWALLAREA=1328
$Split Level    $ UPERIM=68 UPFNDAREA=560
$Split Level    $ BSMTAREA=784
$Split Level    $ ROOFZ=8.0 ROOFHT=14.0 ROOFWD=14.757
$Split Level    $ WALLWD=21.0 WALLHT=8.0 WINDOWWD=5.712
$Split Level    $ WALLX=59.17 SHADEX=79.17
$Split Level    $ INTLOAD=59900 LATLOAD=.2029
*
$Townhouse      $ FLOORAREA=1200 IWALLAREA=976 BSMTAREA=600
$Townhouse      $ ROOFZ=16.0 ROOFHT=15.811 ROOFWD=10.0
$Townhouse      $ WALLHT=16.0 WINDOWWD=4.5
$Townhouse      $ WALLX=45.0 SHADEX=65.0
$Townhouse      $ INTLOAD=53972 LATLOAD=.2252
$Mid Town       $ PERIM=40 WALLWD=10.0
$End Town       $ PERIM=70 WALLWD=17.5
*
$Apartment      $ FLOORAREA=1200 IWALLAREA=976 BSMTAREA=1200

```

```
$Apartment      $ ROOFZ=16.0 ROOFHT=21.082 ROOFWD=15.0
$Apartment      $ WALLHT=8.0 WINDOWWD=9.0
$Apartment      $ WALLX=45.0 SHADEX=65.0
$Apartment      $ INTLOAD=53972 LATLOAD=.2252
$MApartment     $ PERIM=60 WALLWD=15.0
$EApartment     $ PERIM=100 WALLWD=25.0
*
* ----- Location parameters -----
*Dummy          Fdn Layers dependent on soil type for location
*
* ----- Conservation parameters -----
$High Infiltration  $ INFILT = .0007
$Medium Infiltration $ INFILT = .0005
$Low Infiltration   $ INFILT = .0003
*
$1-pane Windows    $ UWINDOW = 1.35
$2-pane Windows    $ UWINDOW = .535
$3-pane Windows    $ UWINDOW = .327
$M-pane Windows    $ UWINDOW = .1
$1. Shading Coefficient $ GLSCOE=1.0
$.7 Shading Coefficient $ GLSCOE=0.7
$.4 Shading Coefficient $ GLSCOE=0.4
*
$R00 Ceiling       $ ROOFL = r0roof
$R11 Ceiling       $ ROOFL = r11roof
$R19 Ceiling       $ ROOFL = r19roof
$R22 Ceiling       $ ROOFL = r22roof
$R30 Ceiling       $ ROOFL = r30roof
$R38 Ceiling       $ ROOFL = r38roof
$R49 Ceiling       $ ROOFL = r49roof
$R60 Ceiling       $ ROOFL = r60roof
$R00 Reg siding wall $ WALLL = r0rwall
$R11 Reg siding wall $ WALLL = r11rwall
$R19 Reg siding wall $ WALLL = r19rwall
$R27 Reg siding wall $ WALLL = r27rwall
$R34 Reg siding wall $ WALLL = r34rwall
$R00 Stucco wall    $ WALLL = r0swall
$R11 Stucco wall    $ WALLL = r11swall
$R19 Stucco wall    $ WALLL = r19swall
$R27 Stucco wall    $ WALLL = r27swall
$R34 Stucco wall    $ WALLL = r34swall
*
*Dummy          Main Fdn U-effective from file proto.fdn
*Dummy          Upper Ufd U-effective from file proto.fdn
*
$FM0 Bsmt         $ FLRL=r0flr B1WALLHT=8 B2WALLHT=0.00001
$FM1 Bsmt         $ FLRL=r0flr B1WALLHT=4 B2WALLHT=4
$FM2 Bsmt         $ FLRL=r0flr B1WALLHT=4 B2WALLHT=4
$FM3 Bsmt         $ FLRL=r0flr B1WALLHT=0.00001 B2WALLHT=8
$FM4 Bsmt         $ FLRL=r0flr B1WALLHT=0.00001 B2WALLHT=8
$FM5 Bsmt         $ FLRL=r11flr B1WALLHT=8 B2WALLHT=0.00001
$FM6 Bsmt         $ FLRL=r30flr B1WALLHT=8 B2WALLHT=0.00001
$FM0 Crawl        $ FLRL=r0flr
$FM1 Crawl        $ FLRL=r11flr
$FM2 Crawl        $ FLRL=r19flr
$FM3 Crawl        $ FLRL=r30flr
```

```
$FM4 Crawl
$FM5 Crawl
$ --- end of parameters -----
                                ..
                                JAN 1 1986 THRU DEC 31 1986 ..
                                CAUTIONS,WIDE,ECHO,SINGLE-SPACED ..
*Dummy BUILDING-LOCATION      LAT=L1, LON=L2,T-Z=L3, ALT=L4,
*Dummy                      WS-HEIGHT-LIST=(12 MONTH TOWER HEIGHTS)
                                AZIMUTH=0 SHIELDING-COEF=0.19
                                TERRAIN-PAR1=.85 TERRAIN-PAR2=.20
                                WS-TERRAIN-PAR1=.85 WS-TERRAIN-PAR2=.20
                                FUNCTION =(*SHADING*,*NONE*)

                                ..
                                ABORT   WARNINGS ..
                                LOADS-REPORT SUMMARY=(LS-E) ..
$-----
$----- Loads Schedules -----
$-----
DAYINTSCH DAY-SCHEDULE          $CEC internal loads profile
                                (1) (.024) (2) (.022) (3,5) (.021)
                                (6) (.026) (7) (.038) (8) (.059)
                                (9) (.056) (10) (.060) (11) (.059)
                                (12) (.046) (13) (.045) (14) (.030)
                                (15) (.028) (16) (.031) (17) (.057)
                                (18,19) (.064) (20) (.052) (21) (.050)
                                (22) (.055) (23) (.044) (24) (.027) ..
INTLDSCH SCHEDULE THRU DEC 31 (ALL) DAYINTSCH ..
$-----
$ The following shading schedule is modified by function SHADING
$ to give .63 during the cooling season defined as periods with
$ more than 5 cooling degree days for the four previous days.
$-----
SHADCO SCHEDULE THRU DEC 31 (ALL) (1,24) (0.80) ..
$-----
$----- Constructions -----
$-----
WINDOWGT GLASS-TYPE          $ Windows
                                SHADING-COEF=GLSCOEF
                                GLASS-CONDUCTANCE=UWINDOW ..
WALLCON CONSTRUCTION          $ Wall section
                                LAYERS=WALLL ..
ROOFCON CONSTRUCTION          $ Roof section, with joist
                                LAYERS=ROOFL ..
IWALLCON CONSTRUCTION          $ Interior walls
                                LAYERS=iwalll ..
DOORCON CONSTRUCTION          $ Solid door
                                U-VALUE=.7181 ..
FSLABCON CONSTRUCTION          $ Floor slab in contact with soil
*
$Slab concrete floor$ LAYERS=FSLABL ..
$Bsmr concrete floor$ LAYERS=BSLABL ..
$Crawl dirt floor $ LAYERS=CGNDL ..
* Split level upper foundation slab -----
$Split $ SLABCON CONSTRUCTION $ Upperfloor slab in contact with soil
$Split $ LAYERS=FSLABL ..
*
```

```

$Two St$ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Two St$ LAYERS=iflrl ..
$Split $ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Split $ LAYERS=iflrl ..
$Townho$ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Townho$ LAYERS=iflrl ..
$Apart $ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Apart $ LAYERS=iflrl ..
$Bsmt constructions -----
$Bsmt $ FLRCON CONSTRUCTION $ Floor over unconditioned space
$Bsmt $ LAYERS=FLRL ..
$Bsmt $ BWALL1CON CONSTRUCTION $ Uninsulated Basement wall
$Bsmt $ LAYERS=ROBWALL ..
$Bsmt $ BWALL2CON CONSTRUCTION $ Insulated Basement wall
$FM0 Bsmt $ LAYERS=ROBWALL ..
$FM1 Bsmt $ LAYERS=R5BWALL ..
$FM2 Bsmt $ LAYERS=R10BWALL ..
$FM3 Bsmt $ LAYERS=R5BWALL ..
$FM4 Bsmt $ LAYERS=R10BWALL ..
$FM5 Bsmt $ LAYERS=ROBWALL ..
$FM6 Bsmt $ LAYERS=ROBWALL ..
$Crawl space constructions -----
$Crawl $ FLRCON CONSTRUCTION $ Floor over unconditioned space
$Crawl $ LAYERS=FLRL ..
$Regcrawl $ CWALLCON CONSTRUCTION $ Uninsul. siding crawlspace walls
$Regcrawl $ LAYERS=r0rcwall ..
$Stucrawl $ CWALLCON CONSTRUCTION $ Uninsul. stucco crawlspace walls
$Stucrawl $ LAYERS=r0scwall ..
$SpltSlab $ BWALL2CON CONSTRUCTION $ Interior fdnwall in Split-level
$SpltSlab $ LAYERS=r0fcwall ..
$SpltBsmt $ UWALLCON CONSTRUCTION $ Wall bet Room & Bsmt in Splitlevel
$SpltBsmt $ LAYERS=uwall1 ..
$SpltCrawl$ UWALLCON CONSTRUCTION $Wall bet Room & Crawl in Splitlevel
$SpltCrawl$ LAYERS=uwall1 ..
$-----
$----- Shades -----
$-----
SURROUNDN BUILDING-SHADE $ Effect of neighboring houses north
HEIGHT=10 WIDTH=SHADEX
X=0 Y=SHADEX AZIMUTH=180
TRANSMITTANCE=0.50 TILT=90 ..
SURROUND S BUILDING-SHADE $ Effect of neighboring houses south
LIKE SURROUNDN
X=SHADEX Y=0 AZIMUTH=0 ..
SURROUNDE BUILDING-SHADE $ Effect of neighboring houses east
LIKE SURROUNDN
X=SHADEX Y=SHADEX AZIMUTH=270 ..
SURROUNDW BUILDING-SHADE $ Effect of neighboring houses west
LIKE SURROUNDN
X=0 Y=0 AZIMUTH=90 ..
$Apartment $ LANDINGN BUILDING-SHADE $ 4ft 2nd story landing north
$Apartment $ HEIGHT=4 WIDTH=WALLX
$Apartment $ X=20 Y=WALLX Z=8.0 AZIMUTH=180
$Apartment $ TILT=0 ..
$Apartment $ LANDINGS BUILDING-SHADE $ 4ft 2nd story landing south
$Apartment $ LIKE LANDINGN X=WALLX Y=20 AZIMUTH=0 ..

```

\$Apartment \$ LANDING BUILDING-SHADE \$ 4ft 2nd story landing east
\$Apartment \$ LIKE LANDINGN X=WALLX Y=WALLX AZIMUTH=270 ..
\$Apartment \$ LANDINGW BUILDING-SHADE \$ 4ft 2nd story landing west
\$Apartment \$ LIKE SURROUNDN X=20 Y=20 AZIMUTH=90 ..

\$----- Space -----

\$ Sensible internal loads are assumed at 4692kWh/year plus
\$ 0.9kWh/sqft for lighting. Latent loads assumed 1300kWh/year
\$

ROOMCOND SPACE-CONDITIONS

TEMPERATURE = (74)
SOURCE-TYPE=PROCESS
SOURCE-SCHEDULE=INTLDSCH
SOURCE-BTU/HR=INTLOAD
SOURCE-SENSIBLE=1.
SOURCE-LATENT=LATLOAD
INF-METHOD=S-G
FRAC-LEAK-AREA = INFILT
FLOOR-WEIGHT=0
FURNITURE-TYPE=LIGHT
FURN-FRACTION=0.29
FURN-WEIGHT=3.30
FUNCTION=(*NONE*, *INFILTRATION*)
..

\$Ach report\$

THEROOM SPACE

SPACE-CONDITIONS=ROOMCOND
AREA=FLOORAREA
VOLUME=FLOORAREA TIMES 8. ..

* Walls

INTWALL INTERIOR-WALL

INT-WALL-TYPE=INTERNAL
AREA=IWALLAREA CONSTRUCTION=IWALLCON ..

NWALL EXTERIOR-WALL

WIDTH=WALLWD CONSTRUCTION=WALLCON
X=WALLX Y=WALLX HEIGHT=WALLHT ..
HEIGHT=6.5 WIDTH=.75 CONSTRUCTION=DOORCON X=3.0 ..
GLASS-TYPE=WINDOWGT X=5.0 Y=3
HEIGHT=4.0 WIDTH=WINDOWWD SHADING-SCHEDULE=SHADCO
OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0
OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0
..

\$Split \$
\$One St\$

\$Two St\$ NWIND2

WINDOW LIKE NWIND1 Y=11.0
OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0 ..
\$Two St\$ NWIND2 WINDOW LIKE NWIND1 Y=11.0
\$Townho\$ NWIND2 WINDOW LIKE NWIND1 Y=11.0
\$Mid To\$ OH-A=15.0 OH-B=1.0 OH-W=WALLWD TIMES 3 OH-D=2.0 ..
\$End To\$ OH-A=5.0 OH-B=1.0 OH-W=WALLWD TIMES 2 OH-D=2.0 ..

SWALL EXTERIOR-WALL

LIKE NWALL X=20 Y=20 AZIMUTH=180 ..

SDOOR

DOOR

LIKE NDOOR ..

SWIND1

WINDOW

LIKE NWIND1 ..

\$Two St\$

SWIND2

WINDOW LIKE NWIND2 Y=11.0 ..

\$Townho\$

SWIND2

WINDOW LIKE NWIND2 Y=11.0 ..

EWALL

EXTERIOR-WALL

LIKE NWALL X=WALLX Y=20 AZIMUTH=90 ..

EDOOR

DOOR

LIKE NDOOR ..

EWIND1

WINDOW

LIKE NWIND1 ..

\$Two St\$

EWIND2

WINDOW LIKE NWIND2 Y=11.0 ..

```
$Townho$ EWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
WWALL EXTERIOR-WALL LIKE NWALL X=20 Y=WALLX AZIMUTH=270 ..
WDOOR DOOR LIKE NDOOR ..
WWIND1 WINDOW LIKE NWIND1 ..
$Two St$ WWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
$Townho$ WWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
* Floors -----
$Slab $ FOUNDATION UNDERGROUND-FLOOR $ Slab floor
$Slab $ HEIGHT=10 WIDTH=BSMTAREA TIMES .1
$Slab $ TILT=180 CONSTRUCTION=FSLABCON
$Slab $ U-EFFECTIVE=FDNUEFF
$Slab $ FUNCTION =(*NONE*,*FNDQ*) ..
$Bsmt $ INTERFLR INTERIOR-WALL $ Floor bet Theroom and Basement
$Bsmt $ TILT=180 CONSTRUCTION=FLRCON
$Bsmt $ AREA=BSMTAREA NEXT-TO=BASEMENT ..
$Crawl $ INTERFLR INTERIOR-WALL $ Floor bet Theroom and Crawlspace
$Crawl $ TILT=180 CONSTRUCTION=FLRCON
$Crawl $ AREA=BSMTAREA NEXT-TO=CRAWLSPACE ..
*
$Two St$ INTFLOOR INTERIOR-WALL INT-WALL-TYPE=INTERNAL
$Two St$ AREA=BSMTAREA CONSTRUCTION=IFLRCON TILT=180 ..
$Split $ INTFLOOR INTERIOR-WALL INT-WALL-TYPE=INTERNAL
$Split $ AREA=UPFNDAREA CONSTRUCTION=IFLRCON TILT=180 ..
$Townho$ INTFLOOR INTERIOR-WALL INT-WALL-TYPE=INTERNAL
$Townho$ AREA=BSMTAREA CONSTRUCTION=IFLRCON TILT=180 ..
*
* Split level walls and floors -----
$Split $ NWALL2 EXTERIOR-WALL LIKE NWALL X=38.17 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ NWIND2 WINDOW GLASS-TYPE=WINDOWGT X=5.0 Y=3.0
$Split $ SHADING-SCHEDULE=SHADCO HEIGHT=4 WIDTH=4.284 ..
$Split $ NWIND3 WINDOW LIKE NWIND1 Y=11 WIDTH=4.284 OH-W=18.17 ..
$Split $ SWALL2 EXTERIOR-WALL LIKE SWALL X=41 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ SWIND2 WINDOW LIKE NWIND2 ..
$Split $ SWIND3 WINDOW LIKE NWIND3 ..
$Split $ EWALL2 EXTERIOR-WALL LIKE EWALL Y=41 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ EWIND2 WINDOW LIKE NWIND2 ..
$Split $ EWIND3 WINDOW LIKE NWIND3 ..
$Split $ WWALL2 EXTERIOR-WALL LIKE WWALL Y=38.17 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ WWIND2 WINDOW LIKE NWIND2 ..
$Split $ WWIND3 WINDOW LIKE NWIND3 ..
$Split $ UPPERFND UNDERGROUND-FLOOR $ Upper foundation slab
$Split $ HEIGHT=10 WIDTH=UPFNDAREA TIMES .1
$Split $ TILT=180 CONSTRUCTION=SLABCON
$Split $ U-EFFECTIVE=UPFUEFF
$Split $ FUNCTION =(*NONE*,*UPFNDQ*) ..
$SpltSlab $ MIDFND UNDERGROUND-WALL $ Vertical concrete wall
$SpltSlab $ HEIGHT=3.0 WIDTH=28
$SpltSlab $ U-EFFECTIVE=FDNUEFF
$SpltSlab $ CONSTRUCTION=BWALL2CON ..
$SpltBsmt $ MIDFND INTERIOR-WALL $ Vertical wall next to basement
$SpltBsmt $ HEIGHT=3.0 WIDTH=28 NEXT-TO=BASEMENT
$SpltBsmt $ CONSTRUCTION=UWALLCON ..
```



```

$SplitCrawl$ MIDFND INTERIOR-WALL $ Vertical wall next to crawl
$SplitCrawl$ HEIGHT=3.0 WIDTH=28 NEXT-TO=CRAWLSPACE
$SplitCrawl$ CONSTRUCTION=UWALLCON ..
*
* Apartment upper unit space -----
$Apartment $ UPROOM SPACE LIKE THEROOM
$Apartment $ FUNCTION=(*NONE*,*NONE*) ..
$Apartment $ APTFLR INTERIOR-WALL $Floor bet Theroom and Uproom
$Apartment $ CONSTRUCTION=IFLRCON AREA=BSMTAREA
$Apartment $ NEXT-TO=THEROOM TILT=180 ..
$Apartment $ UPINTWALL INTERIOR-WALL LIKE INTWALL ..
$Apartment $ UPNWALL EXTERIOR-WALL LIKE NWALL Z=8.0 ..
$Apartment $ UPNDOOR DOOR LIKE NDOOR ..
$Apartment $ UPNWIND WINDOW LIKE NWIND1
$MApartment$ OH-A=15.0 OH-B=1.0 OH-W=WALLWD TIMES 3 OH-D=2.0 .
$EApartment$ OH-A=5.0 OH-B=1.0 OH-W=WALLWD TIMES 2 OH-D=2.0 ..
$Apartment $ UPSWALL EXTERIOR-WALL LIKE SWALL Z=8.0 ..
$Apartment $ UPSDOOR DOOR LIKE NDOOR ..
$Apartment $ UPSWIND WINDOW LIKE UPNWIND ..
$Apartment $ UPEWALL EXTERIOR-WALL LIKE EWALL Z=8.0 ..
$Apartment $ UPEDOOR DOOR LIKE NDOOR ..
$Apartment $ UPEWIND WINDOW LIKE UPNWIND ..
$Apartment $ UPWWALL EXTERIOR-WALL LIKE WWALL Z=8.0 ..
$Apartment $ UPWDOOR DOOR LIKE NDOOR ..
$Apartment $ UPWWIND WINDOW LIKE UPNWIND ..
* Roofs -----
NROOF ROOF X=WALLX Y=WALLX Z=ROOFZ HEIGHT=ROOFHT WIDTH=ROOFWD
CONSTRUCTION=ROOFCON TILT=18.435 ..
SROOF ROOF LIKE NROOF AZIMUTH=180 X=20 Y=20 ..
EROOF ROOF LIKE NROOF AZIMUTH=90 X=WALLX Y=20 ..
WROOF ROOF LIKE NROOF AZIMUTH=270 X=20 Y=WALLX ..
* Split level roof -----
$Split $ NROOF2 ROOF LIKE NROOF HEIGHT=14 WIDTH=10.54 Z=13 X=45.17 ..
$Split $ SROOF2 ROOF LIKE SROOF HEIGHT=14 WIDTH=10.54 Z=13 X=34 ..
$Split $ EROOF2 ROOF LIKE EROOF HEIGHT=14 WIDTH=10.54 Z=13 Y=34 ..
$Split $ WROOF2 ROOF LIKE WROOF HEIGHT=14 WIDTH=10.54 Z=13 Y=45.17 ..
* Basement -----
$Bsmt $ BASEMENT SPACE
$Bsmt $ AREA=BSMTAREA VOLUME=BSMTAREA TIMES 8.
$Bsmt $ FURNITURE-TYPE=LIGHT
$Bsmt $ FURN-FRACTION=0.29
$Bsmt $ FURN-WEIGHT=3.30
$Bsmt $ FLOOR-WEIGHT=0
$Bsmt $ ZONE-TYPE=UNCONDITIONED T=(70) ..
$Bsmt $ FND1WALL UNDERGROUND-WALL $ Basement wall w/o insulation
$Bsmt $ HEIGHT=B1WALLHT WIDTH=PERIM
$Bsmt $ CONSTRUCTION=BWALL1CON TILT=90
$Bsmt $ U-EFFECTIVE= FDNUEFF
$Bsmt $ FUNCTION =(*NONE*,*FNDQ*) ..
$Bsmt $ FND2WALL UNDERGROUND-WALL $ Basement wall with insulation
$Bsmt $ HEIGHT=B2WALLHT WIDTH=PERIM
$Bsmt $ U-EFFECTIVE=FDNUEFF
$Bsmt $ CONSTRUCTION=BWALL2CON TILT=90 ..
$Bsmt $ FOUNDATION UNDERGROUND-FLOOR $ basement concrete floor
$Bsmt $ HEIGHT=10 WIDTH=BSMTAREA TIMES .1
$Bsmt $ U-EFFECTIVE=FDNUEFF

```

```

$Bsm1 $          CONSTRUCTION=FSLABCON TILT=180 ..
*
$Crawl $ CRAWLSPACE SPACE
$Crawl $          AREA=BSMTAREA VOLUME=BSMTAREA TIMES 3.00
$Crawl $          INF-METHOD=S-G
$Crawl $          assume 1 ft2 of vents per 150 ft2 of crawl space area,
$Crawl $          effective-leakage-area = 75% of vent area
$Crawl $          FRAC-LEAK-AREA= .005
$Crawl $          FLOOR-WEIGHT=0
$Crawl $          ZONE-TYPE=UNCONDITIONED T=(60)
$Cach report$    FUNCTION=( *NONE*, *CRAWLINFILT* )
$Crawl $          ..
$Crawl $ NCWALL   EXTERIOR-WALL   LIKE NWALL
$Crawl $          CONSTRUCTION=CWALLCON   HEIGHT=1.50 Z=-3.00 ..
$Crawl $ SCWALL   EXTERIOR-WALL   LIKE SWALL
$Crawl $          CONSTRUCTION=CWALLCON   HEIGHT=1.50 Z=-3.00 ..
$Crawl $ ECWALL   EXTERIOR-WALL   LIKE EWALL
$Crawl $          CONSTRUCTION=CWALLCON   HEIGHT=1.50 Z=-3.00 ..
$Crawl $ WCWALL   EXTERIOR-WALL   LIKE WWALL
$Crawl $          CONSTRUCTION=CWALLCON   HEIGHT=1.50 Z=-3.00 ..
$Crawl $ FOUNDATION UNDERGROUND-FLOOR $ Crawlspace dirt floor
$Crawl $          HEIGHT=10 WIDTH=BSMTAREA TIMES .1
$Crawl $          TILT=180 CONSTRUCTION=FSLABCON
$Crawl $          U-EFFECTIVE=FDNUEFF
$Crawl $          FUNCTION=( *NONE*, *FNDQ* ) ..
END ..
FUNCTION NAME=SHADING
LEVEL=BUILDING ..
ASSIGN Y=SCHEDULE-NAME(SHADCO) ..
ASSIGN IHR=IHR IDAY=IDAY IMO=IMO DBT=DBT ..
ASSIGN IPRDFL=IPRDFL ISUNUP=ISUNUP ..
CALCULATE ..
  IF (IPRDFL .LE. 0) GO TO 2
  SC=Y
  GO TO 70
2  IF (IHR .NE. 1) GO TO 5
  CDH=0
  HDH=0
  IDAYH=0
5  CONTINUE
  IF (ISUNUP .EQ. 0) GO TO 25
  DELTA=DBT-65.0
  IF (DELTA .GT. 0.00) GO TO 10
  HDH=HDH+ABS(DELTA)
  GO TO 20
10 CDH=CDH+DELTA
20 CONTINUE
  IDAYH=IDAYH+1
25 IF (IHR .NE. 24) GO TO 70
  CDDD=CDH/IDAYH
  HDDD=HDH/IDAYH
  IF (CDDD .LT. 5.00) GO TO 29
  IF (SC .NE. 0.80) GO TO 27
  ICOUNT=ICOUNT+1
  IF (ICOUNT .LE. 4) GO TO 40
27 IHCOUNT=0

```

```

SC=0.60
GO TO 70
29 IF (SC .NE. 0.60) GO TO 30
   IHCOUNT=IHCOUNT+1
   IF (IHCOUNT .GE. 4) GO TO 30
   SC=0.60
   GO TO 70
30 ICOUNT=0.0
40 SC=0.80
70 CONTINUE
   Y=SC
C   PRINT 80,Y,IMO,IDAY,IHR,CDDD,CDH,ICOUNT,IHCOUNT
80 FORMAT( ' SHADING : ADD=' ,8F10.2)
END
END-FUNCTION ..
$FndQ function
$FndQ function FUNCTION NAME = FNDQ
$FndQ function LEVEL = UNDERGROUND-WALL ..
$FndQ function ASSIGN DOY=IDoy UGFQ=QUGF UGWQ=QUGW ..
$FndQ function ASSIGN QTABL = TABLE
$FndQ flux table for main foundation from Minnesota model data file
$FndQ function CALCULATE ..
$FndQ function WEEK = DOY / 3.0
$FndQ function UGWQ = 0.0
$FndQ function UGFQ = PWL(QTABL, WEEK)
$FndQ function C PRINT 10, DOY, WEEK, UGWQ, UGFQ
$FndQ function 10 FORMAT('FNDQ',4F10.2)
$FndQ function END-FUNCTION ..
$UFdQ function
$UFdQ function FUNCTION NAME = UPFNDQ
$UFdQ function LEVEL = UNDERGROUND-WALL ..
$UFdQ function ASSIGN DOY=IDoy UPUGFQ=QUGF UPUGWQ=QUGW ..
$UFdQ function ASSIGN UPQTABL = TABLE
$UFdQ flux table for upper foundation from Minnesota model data file
$UFdQ function CALCULATE ..
$UFdQ function WEEK = DOY / 3.0
$UFdQ function UPUGWQ = 0.0
$UFdQ function UPUGFQ = PWL(UPQTABL, WEEK)
$UFdQ function C PRINT 10, DOY, WEEK, UPUGWQ, UPUGFQ
$UFdQ function 10 FORMAT('UPFNDQ',4F10.2)
$UFdQ function END-FUNCTION ..
$Ach function
$Ach function FUNCTION NAME=INFILTRATION
$Ach function LEVEL=BUILDING ..
$Ach function ASSIGN IDoy=IDoy IMO=IMO HR=IHR FLOORAREA=FLOORAREA ..
$Ach function ASSIGN IPRDFL=IPRDFL FNTYPE=FNTYPE INFIL1=CFMINF ..
$Ach function CALCULATE ..
$Ach function IF (FNTYPE .NE. 2) GO TO 8
$Ach function IF (IPRDFL .LE. 0) GO TO 2
$Ach function IMTH=1
$Ach function DL=0
$Ach function TOTAL=0
$Ach function 2 IF ((IDoy .EQ. 365) .AND. (HR .EQ. 24)) GO TO 3
$Ach function IF (IMTH .EQ. IMO) GO TO 5
$Ach function 3 AVG=TOTAL/(DS*24)
$Ach function INF=AVG*60/(FLOORAREA*8)

```

[illegible]

```

PARAMETER
$-----
HEATSET=70      SETBACK=70      $ no night setback
COOLSET=78      SETUP=78       $ no day setup
VTYPE=-1       $ enthalpic venting
$Furn $        FHIR=1.4286    $ 77% efficiency + 10% duct losses
$Furn $        MAXTEMP=120
$HP $         MAXTEMP=100
CBF=.098       CEIR=.3703    $ 2.7 COP air conditioner
*
$One Story     $ HCAPF=-50000.  HPHCAP=-36000  HPBKUP=-17000
$One Story     $ ACCFM=1050   CTCAP=36000   CSCAP=28800.
*
$Two Story     $ HCAPF=-100000. HPHCAP=-48000  HPBKUP=-17000
$Two Story     $ ACCFM=2100   CTCAP=48000   CSCAP=38400.
*
$Split Level   $ HCAPF=-100000. HPHCAP=-36000  HPBKUP=-17000
$Split Level   $ ACCFM=2100   CTCAP=36000   CSCAP=28800.
*
$Townhouse     $ HCAPF=-50000.  HPHCAP=-33000  HPBKUP=-17000
$Townhouse     $ ACCFM=1050   CTCAP=33000   CSCAP=26400.
*
$Apartment     $ HCAPF=-50000.  HPHCAP=-33000  HPBKUP=-17000
$Apartment     $ ACCFM=1050   CTCAP=33000   CSCAP=26400.
..
$-----
$----- Systems Schedules -----
$-----
HTSCH          SCHEDULE $ heat temperature schedule, 7 hour night setback
                THRU DEC 31 (ALL) (1,6) (SETBACK)
                (7,23) (HEATSET)
                (24) (SETBACK) ..
CTSCH          SCHEDULE $ cool temperature schedule, 7 hour day setup
                THRU DEC 31 (ALL) (1,9) (COOLSET)
                (10,16) (SETUP)
                (17,24) (COOLSET) ..
VTSCH          SCHEDULE $Vent schedule based on previous 4 days load
                THRU MAY 14 (ALL) (1,24) (-4)
                THRU SEP 30 (ALL) (1,24) (-4)
                THRU DEC 31 (ALL) (1,24) (-4) ..
VOPSCH         SCHEDULE $Vent operation schedule
                THRU DEC 31 (ALL) (1,24) (VTYPE) ..
WINDOPER       SCHEDULE $No window operation between 11 p.m. and 6 a.m.
                THRU DEC 31 (ALL) (1,6) (0.0)
                (7,23) (1.0)
                (24) (0.0) ..
$-----
$----- Zones -----
$-----
ZC1            ZONE-CONTROL
                DESIGN-HEAT-T=70.
                DESIGN-COOL-T=78.
                COOL-TEMP-SCH=CTSCH
                HEAT-TEMP-SCH=HTSCH
                THERMOSTAT-TYPE=TWO-POSITION ..
THEROOM        ZONE      ZONE-CONTROL=ZC1
```

```
$Apartment$  UPROOM  ZONE      ZONE-TYPE=CONDITIONED ..
$Apartment$                                     ZONE-CONTROL=ZC1
$Bsmt  $  BASEMENT  ZONE      ZONE-TYPE=CONDITIONED ..
$Crawl $  CRAWLSPACE ZONE      ZONE-TYPE=UNCONDITIONED ..
$----- Systems -----
$-----
SYSCONTRL SYSTEM-CONTROL
                MAX-SUPPLY-T=MAXTEMP
                MIN-SUPPLY-T=50

SYSAIR  SYSTEM-AIR
                SUPPLY-CFM=ACCFM
                NATURAL-VENT-SCH=VOPSCH
                VENT-TEMP-SCH=VTSCH
                OPEN-VENT-SCH=WINDOPER
                HOR-VENT-FRAC=0.0
$ assume 1/4 of total window area opened for venting,
$ and discharge coefficient of 0.6
                FRAC-VENT-AREA=0.018
                VENT-METHOD=S-G
                MAX-VENT-RATE=20

SYSEQP  SYSTEM-EQUIPMENT
                COOLING-CAPACITY=CTCAP
                COOL-SH-CAP=CSCAP
                COIL-BF=CBF
                COMPRESSOR-TYPE=SINGLE-SPEED
$HP      Heatpump specifications -----
$HP      $      HEATING-CAPACITY=HPHCAP
$HP      $      HEATING-EIR=.37
$HP      $      HP-SUPP-HT-CAP=HPBKUP
$HP      $      MAX-HP-SUPP-T=40.
$Furn    $      Furnace specifications $
$Furn    $      HEATING-CAPACITY=HCAPF
$Furn    $      FURNACE-AUX=0.
$Furn    $      FURNACE-HIR=FHIR $ duct losses in FHIR already

RESIDEN  SYSTEM  SYSTEM-TYPE=RESYS
$Slab  $      ZONE-NAMES=(THEROOM)
$Bsmt  $      ZONE-NAMES=(THEROOM,BASEMENT)
$Crawl $      ZONE-NAMES=(THEROOM,CRAWLSPACE)
                SYSTEM-CONTROL=SYSCONTRL
                SYSTEM-AIR=SYSAIR
                SYSTEM-EQUIPMENT=SYSEQP
$Furn  $      HEAT-SOURCE=GAS-FURNACE
$HP    $      HEAT-SOURCE=HEAT-PUMP

$Apartment$  UPRESIDEN SYSTEM  SYSTEM-TYPE=RESYS
$Apartment$  ZONE-NAMES=(UPROOM)
$Apartment$  SYSTEM-CONTROL=SYSCONTRL
$Apartment$  SYSTEM-AIR=SYSAIR
$Apartment$  SYSTEM-EQUIPMENT=SYSEQP
$AptFurn  $  HEAT-SOURCE=GAS-FURNACE
$AptHP    $  HEAT-SOURCE=HEAT-PUMP
```

```
$Apartment$ ..  
END ..  
COMPUTE SYSTEMS ..  
STOP ..
```

APPENDIX B. SAMPLE PROCESSED DOE-2.1C INPUT FILE

Appendix B contains a sample processed file for a medium insulated house with a slab foundation in Albuquerque NM.

LDL PROCESSOR INPUT DATA

08-Sep-87 18:20:07 LDL RUN 1

```

* 14 * TITLE LINE-1 *One Story Slab F02 (19-11-FM1-M-2/1.) *
* 15 * LINE-2 *Albuquerque NM WYEC Siding Furn/AC *
* 16 * LINE-3 * *
* 17 * LINE-4 * *
* 18 * LINE-5 * *
* 19 *
* 20 * $-----
* 21 * PARAMETER
* 22 * $-----
* 23 * $
* 24 * $ IWALLAREA = area of interior walls $
* 25 * $ $
* 26 * $One Story $ FLOORAREA=1540 PERIM=166 IWALLAREA=1088 $
* 27 * $One Story $ BSMTAREA=1540
* 28 * $One Story $ ROOFZ=8.0 ROOFHT=14.757 ROOFWD=27.5
* 29 * $One Story $ WALLWD=41.5 WALLHT=8.0 WINDOWWD=11.55
* 30 * $One Story $ WALLX=61.5 SHADEX=81.5
* 31 * $One Story $ INTLOAD=56857 LATLOAD=.2138
* 32 * $Albuquerque $ FSLABL=fslabldy BSLABL=bslabldy CGNDL=cgndldy
* 33 * $Albuquerque $ R5BWALL=r5bwldy R10BWALL=r10bwldy ROBWall=r0bwldy
* 34 * $Medium Infiltration $ INFILT = .0005
* 35 * $2-pane Windows $ UWINDOW = .535
* 36 * $1. Shading Coefficient $ GLSCOE=1.0
* 37 * $R19 Ceiling $ ROOFL = r19roof
* 38 * $R11 Reg siding wall $ WALLL = r11rwall
* 39 * $Albuqu One Slab FM1 $ FDNUEFF =.0217 $ GndU=.0000 GndT=62
* 40 * $ --- end of parameters -----
* 41 *
* 42 * RUN-PERIOD JAN 1 1986 THRU DEC 31 1986 ..
* 43 * DIAGNOSTIC CAUTIONS,WIDE,ECHO,SINGLE-SPACED ..
* 44 * BUILDING-LOCATION LAT=35.05 LON=106.62 T-Z=7 ALT=5310
* 45 * WS-HEIGHT-LIST=
* 46 * (48,23,48,23,48,23,23,23,48,23,23,23)
* 47 * AZIMUTH=0 SHIELDING-COE=0.19
* 48 * TERRAIN-PAR1=.85 TERRAIN-PAR2=.20
* 49 * WS-TERRAIN-PAR1=.85 WS-TERRAIN-PAR2=.20
* 50 * FUNCTION =(*SHADING*,*NONE*)
* 51 *
* 52 * ABORT WARNINGS ..
* 53 * LOADS-REPORT SUMMARY=(LS-E) ..
* 54 * $-----
* 55 * $----- Loads Schedules -----
* 56 * $-----
* 57 * DAYINTSCH DAY-SCHEDULE $CEC internal loads profile
* 58 * (1) (.024) (2) (.022) (3,5) (.021)
* 59 * (6) (.026) (7) (.038) (8) (.059)
* 60 * (9) (.056) (10) (.060) (11) (.059)
* 61 * (12) (.046) (13) (.045) (14) (.030)
* 62 * (15) (.028) (16) (.031) (17) (.057)
* 63 * (18,19) (.064) (20) (.052) (21) (.050)
* 64 * (22) (.055) (23) (.044) (24) (.027) ..
* 65 * INTLDSCH SCHEDULE THRU DEC 31 (ALL) DAYINTSCH ..

```

```

* 66 * $-----
* 67 * $ The following shading schedule is modified by function SHADING
* 68 * $ to give .63 during the cooling season defined as periods with
* 69 * $ more than 5 cooling degree days for the four previous days.
* 70 * $-----
* 71 * SHADCO SCHEDULE THRU DEC 31 (ALL) (1,24) (0.80) ..
* 72 * $-----
* 73 * $----- Constructions -----
* 74 * $-----
* 75 * WINDOWGT GLASS-TYPE $ Windows
* 76 * SHADING-COEF=GLSCOE
* 77 * GLASS-CONDUCTANCE=UWINDOW ..
* 78 * WALLCON CONSTRUCTION $ Wall section
* 79 * LAYERS=WALL ..
* 80 * ROOFCON CONSTRUCTION $ Roof section, with joist
* 81 * LAYERS=ROOFL ..
* 82 * IWALLCON CONSTRUCTION $ Interior walls
* 83 * LAYERS=iwall ..
* 84 * DOORCON CONSTRUCTION $ Solid door
* 85 * U-VALUE=.7181 ..
* 86 * FSLABCON CONSTRUCTION $ Floor slab in contact with soil
* 87 * $Slab concrete floor$ LAYERS=FSLABL ..
* 88 * $-----
* 89 * $----- Shades -----
* 90 * $-----
* 91 * SURROUNDN BUILDING-SHADE $ Effect of neighboring houses north
* 92 * HEIGHT=10 WIDTH=SHADEX
* 93 * X=0 Y=SHADEX AZIMUTH=180
* 94 * TRANSMITTANCE=0.50 TILT=90 ..
* 95 * SURROUNDS BUILDING-SHADE $ Effect of neighboring houses south
* 96 * LIKE SURROUNDN
* 97 * X=SHADEX Y=0 AZIMUTH=0 ..
* 98 * SURROUNDE BUILDING-SHADE $ Effect of neighboring houses east
* 99 * LIKE SURROUNDN
* 100 * X=SHADEX Y=SHADEX AZIMUTH=270 ..
* 101 * SURROUNDW BUILDING-SHADE $ Effect of neighboring houses west
* 102 * LIKE SURROUNDN
* 103 * X=0 Y=0 AZIMUTH=90 ..
* 104 * $-----
* 105 * $----- Space -----
* 106 * $-----
* 107 * $ Sensible internal loads are assumed at 4692kWh/year plus
* 108 * $ 0.9kWh/sqft for lighting. Latent loads assumed 1300kWh/year
* 109 * $-----
* 110 * ROOMCOND SPACE-CONDITIONS
* 111 * TEMPERATURE = (74)
* 112 * SOURCE-TYPE=PROCESS
* 113 * SOURCE-SCHEDULE=INTLDSCH
* 114 * SOURCE-BTU/HR=INTLOAD
* 115 * SOURCE-SENSIBLE=1.
* 116 * SOURCE-LATENT=LATLOAD
* 117 * INF-METHOD=S-G
* 118 * FRAC-LEAK-AREA = INFILT
* 119 * FLOOR-WEIGHT=0
* 120 * FURNITURE-TYPE=LIGHT
* 121 * FURN-FRACTION=0.29
* 122 * FURN-WEIGHT=3.30
* 123 * ..
* 124 * THEROOM SPACE
* 125 * SPACE-CONDITIONS=ROOMCOND

```

```

* 126 *
* 127 * AREA=FLOORAREA
* 128 * INTWALL INTERIOR-WALL VOLUME=FLOORAREA TIMES 8. ...
* 129 * INT-WALL-TYPE=INTERNAL
* 130 * AREA=IWALLAREA CONSTRUCTION=IWALLCON ..
* 131 * NWALL EXTERIOR-WALL
* 132 * WIDTH=WALLWD CONSTRUCTION=WALLCON
* 133 * X=WALLX Y=WALLX HEIGHT=WALLHT ..
* 134 * NDOOR DOOR HEIGHT=6.5 WIDTH=.75 CONSTRUCTION=DOORCON X=3.0 ..
* 135 * NWIND1 WINDOW GLASS-TYPE=WINDOWGT X=5.0 Y=3
* 136 * HEIGHT=4.0 WIDTH=WINDOWWD SHADING-SCHEDULE=SHADCO
* 137 * $One St$ OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0
* 138 *
* 139 * SWALL EXTERIOR-WALL LIKE NWALL X=20 Y=20 AZIMUTH=180 ..
* 140 * SDOOR DOOR LIKE NDOOR ..
* 141 * SWIND1 WINDOW LIKE NWIND1 ..
* 142 * EWALL EXTERIOR-WALL LIKE NWALL X=WALLX Y=20 AZIMUTH=90 ..
* 143 * EDOOR DOOR LIKE NDOOR ..
* 144 * EWIND1 WINDOW LIKE NWIND1 ..
* 145 * WWALL EXTERIOR-WALL LIKE NWALL X=20 Y=WALLX AZIMUTH=270 ..
* 146 * WDOOR DOOR LIKE NDOOR ..
* 147 * WWIND1 WINDOW LIKE NWIND1 ..
* 148 * $Slab $ FOUNDATION UNDERGROUND-FLOOR $ Slab floor
* 149 * $Slab $ HEIGHT=10 WIDTH=BSMTAREA TIMES .1
* 150 * $Slab $ TILT=180 CONSTRUCTION=FSLABCON
* 151 * $Slab $ U-EFFECTIVE=FDNUEFF
* 152 * $Slab $ FUNCTION =(*NONE*,*FNDQ*) ..
* 153 * NROOF ROOF X=WALLX Y=WALLX Z=ROOFZ HEIGHT=ROOFHT WIDTH=ROOFWD
* 154 * CONSTRUCTION=ROOFCON TILT=18.435
* 155 * SROOF ROOF LIKE NROOF AZIMUTH=180 X=20 Y=20 ..
* 156 * EROOF ROOF LIKE NROOF AZIMUTH=90 X=WALLX Y=20 ..
* 157 * WROOF ROOF LIKE NROOF AZIMUTH=270 X=20 Y=WALLX ..
* 158 * END ..

```

-CAUTION-

ALL DIAGNOSTICS FOR THE WEIGHTING-FACTOR
CALCULATION SECTION ARE GIVEN IN ENGLISH UNITS

```

* 159 * FUNCTION NAME=SHADING
* 160 * LEVEL=BUILDING
* 161 * ASSIGN Y=SCHEDULE-NAME(SHADCO) ..
* 162 * ASSIGN IHR=IHR IDAY=IDAY IMO=IMO DBT=DBT ..
* 163 * ASSIGN IPRDFL=IPRDFL ISUNUP=ISUNUP ..
* 164 * CALCULATE
* 165 * IF (IPRDFL .LE. 0) GO TO 2
* 166 * SC=Y
* 167 * GO TO 70
* 168 * 2 IF (IHR .NE. 1) GO TO 5
* 169 * CDH=0
* 170 * HDH=0
* 171 * IDAYH=0
* 172 * 5 CONTINUE
* 173 * IF (ISUNUP .EQ. 0) GO TO 25
* 174 * DELTA=DBT-65.0
* 175 * IF (DELTA .GT. 0.00) GO TO 10
* 176 * HDH=HDH+ABS(DELTA)
* 177 * GO TO 20
* 178 * 10 CDH=CDH+DELTA
* 179 * 20 CONTINUE
* 180 * IDAYH=IDAYH+1
* 181 * 25 IF (IHR .NE. 24) GO TO 70
* 182 * CDDD=CDH/IDAYH

```

```

* 183 *      HDDD=HDH/IDAYH
* 184 *      IF (CDDD .LT. 5.00) GO TO 29
* 185 *      IF (SC .NE. 0.80) GO TO 27
* 186 *      ICOUNT=ICOUNT+1
* 187 *      IF (ICOUNT .LE. 4) GO TO 40
* 188 *      27 IHCOUNT=0
* 189 *      SC=0.60
* 190 *      GO TO 70
* 191 *      29 IF (SC .NE. 0.60) GO TO 30
* 192 *      IHCOUNT=IHCOUNT+1
* 193 *      IF (IHCOUNT .GE. 4) GO TO 30
* 194 *      SC=0.60
* 195 *      GO TO 70
* 196 *      30 ICOUNT=0.0
* 197 *      40 SC=0.80
* 198 *      70 CONTINUE
* 199 *      Y=SC
* 200 *      C PRINT 80,Y,IMO,IDAY,IHR,CDDD,CDH,ICOUNT,IHCOUNT
* 201 *      80 FORMAT( ' SHADING : ADD=' ,8F10.2)
* 202 *      END

```

----- S Y M B O L T A B L E -----

CDDD	**LOCAL*	CDH	**LOCAL*	DBT	(GLOBAL)	DELTA	**LOCAL*
HDH	**LOCAL*	ICOUNT	**LOCAL*	IDAYH	**LOCAL*	IHCOUNT	**LOCAL*
IPRDFL	(GLOBAL)	ISUNUP	(GLOBAL)	SC	**LOCAL*	Y	(SCH-NM)

```

* 203 *      END-FUNCTION
* 204 *
* 205 *      FUNCTION NAME = FNDQ
* 206 *      LEVEL = UNDERGROUND-WALL
* 207 *      ASSIGN DOY=ID0Y UGFQ=QUGF UGWQ=QUGW ..
* 208 *      ASSIGN QTABL = TABLE
* 209 *      ( 0, -2848.0) ( 1, -2890.9) ( 2, -2923.0) ( 3, -2940.5) ( 4, -2951.1)
* 210 *      ( 5, -2965.2) ( 6, -2969.1) ( 7, -2989.7) ( 8, -3056.8) ( 9, -3079.3)
* 211 *      (10, -3078.6) (11, -3047.5) (12, -2992.4) (13, -2924.8) (14, -2888.9)
* 212 *      (15, -2965.7) (16, -3055.0) (17, -3086.0) (18, -3095.1) (19, -3080.7)
* 213 *      (20, -3044.5) (21, -3005.8) (22, -3026.0) (23, -3023.6) (24, -3005.5)
* 214 *      (25, -2990.5) (26, -2971.8) (27, -2949.1) (28, -2909.0) (29, -2891.7)
* 215 *      (30, -2857.4) (31, -2839.2) (32, -2816.4) (33, -2748.9) (34, -2701.0)
* 216 *      (35, -2678.6) (36, -2622.4) (37, -2558.6) (38, -2498.7) (39, -2430.0)
* 217 *      (40, -2388.9) (41, -2327.6) (42, -2296.8) (43, -2282.9) (44, -2244.7)
* 218 *      (45, -2183.0) (46, -2126.5) (47, -2084.6) (48, -2065.4) (49, -2049.5)
* 219 *      (50, -2005.4) (51, -1959.2) (52, -1919.2) (53, -1877.8) (54, -1848.3)
* 220 *      (55, -1798.8) (56, -1743.0) (57, -1689.2) (58, -1637.7) (59, -1573.3)
* 221 *      (60, -1493.8) (61, -1418.4) (62, -1366.4) (63, -1360.2) (64, -1367.1)
* 222 *      (65, -1349.9) (66, -1328.9) (67, -1304.8) (68, -1270.3) (69, -1227.4)
* 223 *      (70, -1172.8) (71, -1137.0) (72, -1123.4) (73, -1101.7) (74, -1077.6)
* 224 *      (75, -1064.5) (76, -1076.9) (77, -1069.8) (78, -1063.8) (79, -1065.1)
* 225 *      (80, -1065.8) (81, -1071.6) (82, -1087.8) (83, -1096.9) (84, -1097.7)
* 226 *      (85, -1094.9) (86, -1099.1) (87, -1109.7) (88, -1120.6) (89, -1156.5)
* 227 *      (90, -1193.6) (91, -1209.2) (92, -1240.8) (93, -1269.8) (94, -1309.8)
* 228 *      (95, -1343.8) (96, -1375.3) (97, -1411.7) (98, -1466.7) (99, -1522.6)
* 229 *      (100, -1571.5) (101, -1622.6) (102, -1671.8) (103, -1710.1) (104, -1757.4)
* 230 *      (105, -1791.8) (106, -1822.5) (107, -1874.3) (108, -1934.4) (109, -2034.2)
* 231 *      (110, -2134.7) (111, -2260.7) (112, -2342.2) (113, -2382.9) (114, -2418.0)
* 232 *      (115, -2450.5) (116, -2502.9) (117, -2548.4) (118, -2577.7) (119, -2610.2)
* 233 *      (120, -2659.0) (121, -2751.0) (122, -2814.3) ..

```

```
* 234 *      CALCULATE ..
* 235 *      WEEK = DOY / 3.0
* 236 *      UGWQ = 0.0
* 237 *      UGFQ = PWL(QTABL, WEEK)
* 238 *  C    PRINT 10, DOY, WEEK, UGWQ, UGFQ
* 239 *      10 FORMAT('FNDQ',4F10.2)
* 240 *      END-FUNCTION ..
```

----- S Y M B O L T A B L E -----							
DOY	(GLOBAL)	QTABL	(TABLE)	UGFQ	(GLOBAL)	UGWQ	(GLOBAL)

```
* 241 *      COMPUTE LOADS ..
* 242 *      $
* 243 *      $ *(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)
* 244 *      $ *(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)
* 245 *      $ *(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)
* 246 *      $ *(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)
* 247 *      $ *(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)
* 248 *      $ *(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)
* 249 *      $
* 250 *      INPUT   SYSTEMS ..
```

SDL PROCESSOR INPUT DATA

08-Sep-87 18:20:07 SDL RUN 1

```

* 251 * TITLE LINE-1 *One Story Slab F02 (19-11-FM1-M-2/1.) *
* 252 * LINE-2 *Albuquerque NM WYEC Siding Furn/AC *
* 253 * LINE-3 * *
* 254 * LINE-4 * *
* 255 * LINE-5 * *
* 256 *
* 257 *
* 258 * DIAGNOSTIC CAUTIONS ECHO ..
* 259 * SYSTEMS-REPORT
* 260 * SUMMARY=(SS-A,SS-B,SS-C,SS-F,SS-H,SS-I) ...
* 261 *
* 262 * PARAMETER
* 263 *
* 263 * HEATSET=70 SETBACK=70 $ no night setback
* 264 * COOLSET=78 SETUP=78 $ no day setup
* 265 * VTYPE=-1 $ enthalpic venting
* 266 * $Furn $ FHIR=1.4286 $ 77% efficiency + 10% duct losses
* 267 * $Furn $ MAXTEMP=120
* 268 * CBF=.098 CEIR=.3703 $ 2.7 COP air conditioner
* 269 * $One Story $ HCAPF=-50000. HPHCAP=-36000 HPBKUP=-17000
* 270 * $One Story $ ACCFM=1050 CTCAP=36000 CSCAP=28800.
* 271 *
* 272 *
* 273 * $----- Systems Schedules -----
* 274 * $-----
* 275 * HTSCH SCHEDULE $ heat temperature schedule, 7 hour night setback
* 276 * THRU DEC 31 (ALL) (1,6) (SETBACK)
* 277 * (7,23) (HEATSET)
* 278 * (24) (SETBACK) ..
* 279 * CTSCH SCHEDULE $ cool temperature schedule, 7 hour day setup
* 280 * THRU DEC 31 (ALL) (1,9) (COOLSET)
* 281 * (10,16) (SETUP)
* 282 * (17,24) (COOLSET) ..
* 283 * VTSCH SCHEDULE $Vent schedule based on previous 4 days load
* 284 * THRU MAY 14 (ALL) (1,24) (-4)
* 285 * THRU SEP 30 (ALL) (1,24) (-4)
* 286 * THRU DEC 31 (ALL) (1,24) (-4) ..
* 287 * VOPSCH SCHEDULE $Vent operation schedule
* 288 * THRU DEC 31 (ALL) (1,24) (VTYPE) ..
* 289 * WINDOPER SCHEDULE $No window operation between 11 p.m. and 6 a.m.
* 290 * THRU DEC 31 (ALL) (1,6) (0.0)
* 291 * (7,23) (1.0)
* 292 * (24) (0.0) ..
* 293 * $-----
* 294 * $----- Zones -----
* 295 * $-----
* 296 * ZC1 ZONE-CONTROL
* 297 *
* 298 * DESIGN-HEAT-T=70.
* 299 * DESIGN-COOL-T=78.
* 300 * COOL-TEMP-SCH=CTSCH
* 301 * HEAT-TEMP-SCH=HTSCH
* 302 * THEROOM ZONE THERMOSTAT-TYPE=TWO-POSITION ..
ZONE-CONTROL=ZC1

```

```

* 303 *
* 304 * $----- ZONE-TYPE=CONDITIONED ..
* 305 * $----- Systems -----
* 306 * $-----
* 307 * SYSCTRL SYSTEM-CONTROL
* 308 * MAX-SUPPLY-T=MAXTEMP
* 309 * MIN-SUPPLY-T=50
* 310 *
* 311 * SYSAIR SYSTEM-AIR
* 312 * SUPPLY-CFM=ACCFM
* 313 * NATURAL-VENT-SCH=VOPSCH
* 314 * VENT-TEMP-SCH=VTSCH
* 315 * OPEN-VENT-SCH=WINDOPER
* 316 * HOR-VENT-FRAC=0.0
* 317 * $ assume 1/4 of total window area opened for venting,
* 318 * $ and discharge coefficient of 0.6
* 319 * FRAC-VENT-AREA=0.018
* 320 * VENT-METHOD=S-G
* 321 * MAX-VENT-RATE=20
* 322 *
* 323 * SYSEQP SYSTEM-EQUIPMENT
* 324 * COOLING-CAPACITY=CTCAP
* 325 * COOL-SH-CAP=CSCAP
* 326 * COIL-BF=CBF
* 327 * COMPRESSOR-TYPE=SINGLE-SPEED
* 328 * $Furn Furnace specifications $
* 329 * $Furn $ HEATING-CAPACITY=HCAPF
* 330 * $Furn $ FURNACE-AUX=0.
* 331 * $Furn $ FURNACE-HIR=FHIR $ duct losses in FHIR already
* 332 *
* 333 * RESIDEN SYSTEM SYSTEM-TYPE=RESYS
* 334 * $$lab $ ZONE-NAMES=(THEROOM)
* 335 * SYSTEM-CONTROL=SYSCTRL
* 336 * SYSTEM-AIR=SYSAIR
* 337 * SYSTEM-EQUIPMENT=SYSEQP
* 338 * $Furn $ HEAT-SOURCE=GAS-FURNACE
* 339 *
* 340 * END ..
* 341 * COMPUTE SYSTEMS ..
* 342 * STOP ..

```

SYMBOL TABLE							
DOY	(GLOBAL)	QTABL	(TABLE)	UGFQ	(GLOBAL)	UGWQ	(GLOBAL)

```

* 241 *          COMPUTE LOADS ..
* 242 *          $
* 243 *          $ * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) *
* 244 *          $ * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) *
* 245 *          $ * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) *
* 246 *          $ * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) *
* 247 *          $ * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) *
* 248 *          $ * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) * (*) *
* 249 *          $
* 250 *          INPUT      SYSTEMS ..

```


SDL PROCESSOR INPUT DATA

08-Sep-87 18:20:07 SDL RUN 1

```

* 251 * TITLE LINE-1 *One Story Slab FO2 (19-11-FM1-M-2/1.) *
* 252 * LINE-2 *Albuquerque NM WYEC Siding Furn/AC *
* 253 * LINE-3 * *
* 254 * LINE-4 * *
* 255 * LINE-5 * *
* 256 * *
* 257 * DIAGNOSTIC CAUTIONS ECHO ..
* 258 * SYSTEMS-REPORT
* 259 * SUMMARY=(SS-A,SS-B,SS-C,SS-F,SS-H,SS-I) ...
* 260 * $-----
* 261 * PARAMETER
* 262 * $-----
* 263 * HEATSET=70 SETBACK=70 $ no night setback
* 264 * COOLSET=78 SETUP=78 $ no day setup
* 265 * VTYPE=-1 $ enthalpic venting
* 266 * $Furn $ FHIR=1.4286 $ 77% efficiency + 10% duct losses
* 267 * $Furn $ MAXTEMP=120
* 268 * CBF=.098 CEIR=.3703 $ 2.7 COP air conditioner
* 269 * $One Story $ HCAPF=-50000. HPHCAP=-36000 HPBKUP=-17000
* 270 * $One Story $ ACCFM=1050 CTCAP=36000 CSCAP=28800.
* 271 *
* 272 * $-----
* 273 * $----- Systems Schedules -----
* 274 * $-----
* 275 * HTSCH SCHEDULE $ heat temperature schedule, 7 hour night setback
* 276 * THRU DEC 31 (ALL) (1,6) (SETBACK)
* 277 * (7,23) (HEATSET)
* 278 * (24) (SETBACK) ..
* 279 * CTSCH SCHEDULE $ cool temperature schedule, 7 hour day setup
* 280 * THRU DEC 31 (ALL) (1,9) (COOLSET)
* 281 * (10,16) (SETUP)
* 282 * (17,24) (COOLSET) ..
* 283 * VTSCH SCHEDULE $Vent schedule based on previous 4 days load
* 284 * THRU MAY '14 (ALL) (1,24) (-4)
* 285 * THRU SEP 30 (ALL) (1,24) (-4)
* 286 * THRU DEC 31 (ALL) (1,24) (-4) ..
* 287 * VOPSCH SCHEDULE $Vent operation schedule
* 288 * THRU DEC 31 (ALL) (1,24) (VTYPE) ..
* 289 * WINDOPER SCHEDULE $No window operation between 11 p.m. and 6 a.m.
* 290 * THRU DEC 31 (ALL) (1,6) (0.0)
* 291 * (7,23) (1.0)
* 292 * (24) (0.0) ..
* 293 * $-----
* 294 * $----- Zones -----
* 295 * $-----
* 296 * ZC1 ZONE-CONTROL
* 297 *
* 298 * DESIGN-HEAT-T=70.
* 299 * DESIGN-COOL-T=78.
* 300 * COOL-TEMP-SCH=CTSCH
* 301 * HEAT-TEMP-SCH=HTSCH
* 302 * THEROOM ZONE THERMOSTAT-TYPE=TWO-POSITION ..
ZONE-CONTROL=ZC1

```